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Railway Work in Canada.

THE Intercolonial, a History, is the title given to a book of no little interest* in regard both to the constructional and to what may be termed the political aspects of railway-making. It contains the history, from the first preliminary agitation of the scheme down to its final completion, of the line of railway called the "Intercolonial," which by a very circuitous route connects Quebec with Halifax and St. John. The book, as we learn from the prefatory letter addressed to the Hon. Alexander Mackenzie, Minister of Public Works and Premier of Canada, arose out of the fact that it became the duty of the chief engineer, on the completion of the line, to draw up a full report of it for the Government. Regarding the Intercolonial Railway as "national in its objects and character," the engineer thought that something beyond a mere professional and technical report would be of interest, and therefore, with the concurrence of his Government, has expanded the report into a general history of the line, giving all necessary technical information, but put into such a form as may make it of interest also to general readers. The idea has been exceedingly well carried out. There is no fine writing in Mr. Fleming's history; there is not, in fact, a superfluous sentence in the book; the technical description of the operations is fully illustrated by careful diagrams as well as by views of the principal structures on the line, while the interest of the non-professional reader is kept up as well by the clear and lucid account of the various difficulties in the route, and the means by which they were overcome, as by the broad view which the writer always keeps before him of the social and political relations of the subject, which impart to it, as he says, a national character, and have in one or two points also a direct practical interest for dwellers on this side of the Atlantic.

A great part of the introductory portion of the account is, in fact, intimately associated with the political history of Canada and New Brunswick. We can only just touch on the salient points in the long negotiation phase, as we may term it, of the scheme. The first suggestion of the advantage of a line connecting Quebec directly with the Atlantic coast was made from England in 1832, by Mr. Henry Fairbairn, whose letter on the subject, in the *United Service Journal*, is quoted at length, and a special tribute paid by the author to the foresight which Mr. Fairbairn exhibited in suggesting at that early date the main features of a scheme which has only just been completely realised. The idea then was that St. Andrew's should be the maritime terminus of the line, which was to cut directly across country in as straight a line as possible to Quebec. In 1836, in response to an appeal for help from St. Andrew's for a project the importance of which had by that time become fully realised, the English Government voted 10,000*l.*, to be expended in the difficult and costly process of making the necessary preliminary survey of a country then almost entirely uncleared, and the character of which had only been vaguely guessed at from the reports of a few hunters who had traversed it. Subsequently to this survey intervened the political difficulties in connexion with the Maine boundary question; and when, in 1842, the boundary between New Brunswick and the State of Maine was definitely settled, the result was to leave within the boundaries of the latter nearly the whole of the district over which the costly survey of 1836-7 had extended; a trifling *contretemps* which knocked that scheme on the head pretty effectually, and leaves at least the lesson not to survey a country till you know whether it is your own or not. The idea of the Intercolonial Railway revived, however, in the railway mania year of 1845; and in 1863, after repeated negotiations between Canada and the mother country, the English Government undertook to grant a loan of 3,000,000*l.* to assist the enterprise, so soon as a survey of the proposed route had been made and approved by Parliament. It was at this phase of the history that the author of the present volume was appointed to carry out the survey on behalf of the Canadian Government, and to co operate with two other professional representatives of the Imperial Government and the Lower Provinces respectively. On the 5th of March, 1864, Mr. Fleming left Quebec for Rivière du Loup, the terminus of the already constructed "Grand Trunk Railway," to arrange about forwarding supplies and commence a reconnaissance, which had to be carried on in a country destitute of roads, upon snow-shoes and dog-sleds. The report was made in 1865, and fifteen lines, or combinations of lines, were compared. The doubt and difficulty about the route almost entirely resulted from the destruction of the possibility of a direct route between St. Andrew's and Quebec by the interposition of the limb of the State of Maine. For the details of the controversy which issued, upon the relative advantages of different routes, and which was not finally terminated till September, 1868, we must refer the reader to Mr. Fleming's book: the account has considerable interest in regard to what may be termed the political economy of railway-making. The main contest was between the principle of keeping as near the original short route as possible, skirting the Maine State frontier (and which was called the "Frontier Scheme"), and taking a longer and more circuitous coast route, touching the head of Chaleur Bay and then skirting the shores of the St. Lawrence and joining the Grand Trunk Railway at Rivière du Loup. The effect of this is to take the line over a large arc of a circle instead of over the chord of the arc as originally suggested; the extra distance being compensated for by the increased importance of the coast route for traffic and for military purposes, and the increased facility for sending supplies and materials for a line which touched the coast at several points, as compared with an inland route through uncleared districts. Eventually, and after struggling against much opposition, the engineer-in-chief, who had always believed in the coast route, succeeded in obtaining precisely that modification of it which he had recommended; and which, starting from Halifax, crosses the head of the Bay of Fundy to Moncton, whence it sends off a south-western branch about ninety miles in length to St. John's, continuing its course northward to Chaleur Bay, and westward to the junction with the Grand Trunk Railway on the right bank of the St. Lawrence: making a total length of more than 700 miles of railway. The selection of the Chaleur Bay route is not without interest for Europeans, as one idea in selecting it was, that a port for ocean steamers at Chaleur Bay would shorten the whole distance between Montreal and Liverpool fully four hundred miles, and that even between Liverpool and New York one hundred and sixty miles would be saved by commencing the Ocean passage at Chaleur Bay. In furtherance of this view Mr. Fleming mentions that a survey has already been made for a branch line of about forty miles in length eastward from the intercolonial main line at Bathurst to Shippigan, at the entrance of Chaleur Bay, with the view of providing "a short mail route between England and America"; and that the survey shows that only wharfs and piers, a short distance from the land, are necessary to make the harbour available for the largest steamers.

The line was carried on under Commissioners till 1874, when Parliament passed an Act vesting all the powers and duties of the Commissioners in the Minister of Public Works, to whom the present history is addressed. At the first meeting of the chief engineer and his assistants with the Commissioners on December 30th, 1868, a dispute arose, which was not settled for some time, in regard to the recommendation of the engineer that all bridges should be of iron, and the wish of the Commissioners to build them of timber. This is a point in the history which touches on the subject of some recent remarks of our own on the picturesque aspect of railways. Considering that the railway was made through a timber country, it would seem that, even on the obvious principle of the utilisation of natura resources, the Commissioners had reason on their side. The chief engineer, however, entertained a more decidedly opposite view, fought the matter perseveringly, and succeeded eventually (as he appears generally indeed to have done) in getting his own way. His main reason appears

* The Intercolonial: an Historical Sketch of the Inception, Location, Construction, and Completion of the Line of Railway uniting the Inland and Atlantic Provinces of the Dominion; with Maps and numerous Illustrations. By Sandford Fleming, C.E., Engineer-in-Chief of the Newfoundland, Intercolonial, and Canadian Pacific Railways. Dawson, Bros., Montreal; Sampson Low, Marston, & Co., London. 1876.

to have been that iron was more permanent, could be delivered by sea at certain points without extravagant cost, and was free from danger from fire; and two of the timber bridges on the Grand Trunk Railway had recently been burned. This latter is a serious consideration, but might have been provided against by iron lining to the roadway, as it must be presumed the fire originated in those cases from cinders dropped by the engine. As to the question of permanence, is that fairly settled? While we applaud Mr. Fleming for his persistency in fighting for what he considered the best construction, we cannot but reflect, on looking at the numerous views of the bridges in his book, how in every case it is the ironwork which is the drawback to what would otherwise be a style of structure perfectly in keeping with the country, and cannot but wish that the experiment might have been fairly made of using the natural material of the country, and showing what could be done with timber, which the modern engineer so completely neglects for his favourite iron. But in his general views Mr. Fleming is remarkably in accordance with those recently expressed in our columns in regard to the treatment of railway structures, so far as appearances are concerned. He says (p. 113),—

"A railway of a high standard is, in fact, a simple problem. It does not exact magnificence of design, or works which astonish by their display or cost. Architectural monuments have no place on public works like the one in question, and many well-known structures can be regarded only as mementos of useless expenditure.

As a theory, the perfect railway consists of two parallel lines of continuous rails, uniformly sustained by a firm and slightly elastic support. Bridges and culverts are incidents naturally to be looked for, but never to be introduced except where absolutely exacted. It is the duty of the engineer to design and establish them as cheaply as he can, having regard to permanency, and not to convert them into opportunities for display. Taste may even be consulted without any expenditure beyond that required to secure solidity, and the skill of the designers should aim at the attainment of effect with the least extent of adorned material, and strive after the grace of outline to be found in extreme simplicity.

In the Intercolonial Railway it was held better to aim at the realisation of this principle, than to advocate the introduction of structures remarkable for their magnitude and ornament, however gratifying to the personal pride of the designer."

We are glad to find an able engineer like Mr. Fleming so completely endorsing, not only the spirit but almost the very wording, of some of our own remarks on railway structures (p. 846, *ante*). How he puts his ideas into practice we see from such illustrations as the views of the large piers of the Metapedia and Restigouche Bridges (plates 13, 15), and the general view of the Nipissiguit Bridge (plate 22). The great mass and strength of the Restigouche Pier, in comparison with the light superstructure, is no matter for surprise when the habits of the river are considered. In addition to the chance of "ice-jams" when the winter ice breaks up, the Restigouche is subject to spring freshets, in which the water rises 18 ft. or so above the average level, and as a great deal of timber is cut on the banks of the river, the contingency of rafts and rift logs striking the piers and endangering the superstructure had to be provided against by the greatly prolonged cutwater, to act as a guard. The author mentions that he has seen a bridge bodily carried away in Canada by drift timber on a rising stream, and that when proper precautions are not taken the occurrence is not uncommon. "During a 'timber drive' at flood water, the logs form a jam against the piers, and as the water rises are raised beneath the superstructure, lift it from its seat, and finally carry it away." In order to give greater strength to the cut-water, it was faced with granite, which had to be brought nearly ninety miles, seventy of which only were by open navigation. The blocks, weighing from three to nine tons in their finished sizes, were prepared in the quarry. "The face stones of the cut-water, the coping, bridge seats, and the two upper courses of ashlar, together with the skew quoins on the down-stream end of the piers, are of granite. A striking contrast is accordingly obtained to the dark slate colour of the body of the masonry, which adds to the appearance of the structure. . . . . The whole is built in Portland cement, and the exposed parts of the piers were secured by strong iron clamps, so contrived that it would be impossible for floating logs or ice to disturb a single stone without moving the whole mass to which it is attached." There are four mid-stream piers, and the work occupied five years and a half. The Nipissiguit Bridge was a much simpler affair, as the river is a comparatively shallow and well-behaved one. These illustrations, however, serve to show (as well as a good many others in the book) how very nearly modern engineering works, when treated unpretentiously and frankly in reference directly to the constructive necessities of the case, may approach to the characteristics of Mediæval building. There is something in the ponderous Restigouche pier, with its sloping lines and granite face, which irresistibly reminds us of the effect of a massive piece of early Gothic building, before the style had frittered into ornamental detail; and the outline of the Nipissiguit piers is as effective and picturesque as if this had been a main object. One can imagine how completely the effect and character would be taken out of these structures if the piers were ornamentally (?) panelled in the way many English engineers employ to give what they consider an architectural character to their constructions. The Tête-à-gauche Bridge, on the same section of line, which crosses a ravine with only a small stream, and where the piers stand mostly on dry ground, is a still more simple construction, the piers consisting merely of cubes of masonry carried straight up to the required height; the general effect at once recalls, on a larger scale, the style of bridge found over brooks in some wild parts of Wales, consisting simply of plain square dry-stone piers with a plank and rail across the top, and which, as we all know, artists are never tired of sketching and introducing into their landscapes. These and other illustrations at least indicate how entirely free from vulgarity railway structures may be, when there is no attempt made to dress them in an incongruous and ill-fitting decorative masquerade.

We need hardly say that the illustrations to Mr. Fleming's book are not confined to picturesque views; that full constructional plans and sections of the principal bridges are given, showing the details of the problems presented in bridging these (mostly) wide and rapid rivers. One or two points in the description of the process of constructing the bridges over the double stream of the Miramichi may be mentioned. This was one of the most difficult and important constructions of the route; and the section of the river was very deceitful. The preliminary boring operations, made with such boring implements as could be extemporised in the neighbourhood by a country blacksmith, to test the bed of the river, revealed a hard bed of some kind, under 25 ft. of water, and about the same of soft mud; and as the operator saw sandstone rock cropping up at the margin of the river, he excusably flattered himself that he had arrived at the rock. But subsequent tests with more perfect implements dispelled this pleasing allusion. What the first boring-tool had struck was a stratum of hard gravel, about 8 ft. thick, below which came about 70 ft. (in the centre of the river) of silt, then about 15 ft. of clay, and below that the rock*. By various borings it was ascertained that this false bed of gravel was a nearly horizontal stratum; and the question was, could this comparatively thin gravel deposit, floated upon a bed of silt, be trusted to carry the piers, and thus save the immense cost and labour of penetrating to the rock? We may cite the author's description of the operations, partly complicated by the fact that the Miramichi, at the point where it is crossed, is a tidal river:—

"The boring was performed in the usual manner, 7 in. tubing being used. Some arrangement was, however, necessary to meet the difficulty which the rise and fall of the tide presented when operating from the ice" (from which the borings were performed in winter), "in order that the tube should be maintained vertical and steady, and free from all liability to derangement, as the ice rose and fell. A wooden tube or box, 9 in. square inside, and of sufficient length to extend beyond the range of tides, was sunk through the ice, and had arms which rested upon and were made fast to the surface. This box protected the upper part of the iron tubing from the ice, while itself rose and fell with the tide. When operating from a scow" (in summer) "a well through the floor of the scow served the same purpose. On reaching a suitable depth a smaller tube, 5 in. diameter, was introduced, telescopic fashion, care being taken that the upper end of the smaller tube did not fall below the bottom of the larger one. The point of the tubing was in all cases made to precede the point of the valve auger or other boring-tool in use, and thus the exact depth and character of the various strata were ascertained.

As the boring proceeded for the north-west bridge, experiments were made to ascertain by direct pressure the load which the strata would carry. On the tubes reaching the point to be tested, and the material within having been removed, iron rods, smaller than the tubing, were passed down. The rods terminated in a blunt end with an area of three square inches. They were kept clear from friction, and were loaded above the surface of the water with different weights, which were allowed to remain for definite lengths of time. In this manner the supporting power of the different strata in the bed of the river was distinctly ascertained."

A table of the result of these tests is referred to as given in the appendix, but appears to have been omitted through some oversight. The information, however, satisfied the engineer that the gravel stratum could be trusted to, with a wider base to the pier than was at first intended; which, after a little inevitable grumbling on the part of the contractors, was agreed to. For the detailed account of the building of the piers, which is very interesting, we must refer the reader to Mr. Fleming's pages. The piers now stand on 19 ft. thick of concrete (the upper surface within 5 ft. of low-water mark), which rests on a bed of crushed stone of the same thickness, supported by the gravel stratum: and the whole of this was surrounded by a mass of "rip-rap," or loose stones piled together, as a further defence from the disturbing action of the current. The piers were heavily loaded and left for some time, as a further test of the security of the gravel stratum, which proved perfectly satisfactory; what little settling there was in the process of building being traced to the compression of the stone filling under the concrete as the load of the pier came upon it. The whole account is worth the attention of all who are interested in engineering works.

Among special points in the construction of the Intercolonial railway may be mentioned the form of abutment adopted by the engineer where the bridges rest on the embankment. He discards wing-walls altogether, and simply builds up a strong hollow tower of masonry with vertical sides the width necessary to support the shore end of the bridge, and round which the slope of the embankment is finished, so as to surround the masonry tower. It is needless to say that this method, the appearance of which may be judged of from the views of the Metis Bridge and New Mills Bridge (plates 8 and 20), does not make so neat a finish to the termination of an embankment as the wing-wall system, and it appears to us that there may be situations and soils where the wing-wall would be almost a necessity; but the practical objection to wing-walls in the Canada climate, as stated by Mr. Fleming, is, that if the embankment is composed of anything that will hold moisture, the winter frosts give it an expansive force which, in the end, will fracture or displace masonry of any strength; whereas it is impossible for the hollow towers placed in the heart of the embankment, on his system, to be injured either by the thrust of the earth or by frost. The description of the difficulties with the clay-cuttings near Trois Pistoles is a phase of the story to be noted. Another point we may mention is the method devised by an enterprising sub-contractor for excavating by water-action. At one place on the Metapedia River, "a steep bank, about 120 ft. high, and composed chiefly of gravel, projected for a distance of about 1,000 ft. along the edge of the river, leaving no site for the railway. It was designed to construct an embankment along the river side, protected by extensive crib-wharfing. The sub-contractor introduced a method of washing away the gravel by means of water-jets. Streams from the high side-hills were dammed up at a point about half a mile from the work; the water was conveyed by a wooden trough to the place required, and directed against the face of the bank in a continuous stream. Its force undermined and loosened the material so effectually that masses, often by thousands of yards, would slide into the river in a brief space of time. Immense quantities of material were thus removed, with very little manual labour, and at a cost, probably, less than one-sixth of ordinary excavation. The result was, that the railway was made on solid ground, requiring little or no protection. This system of excavating material by an available flow of water was so successful, that it was adopted on other portions of the line where streams with sufficient fall could be obtained."

With this new "wrinkle" (as we believe it is) for the engineer in dealing with matter that is in the wrong place, we must conclude our remarks on a very interesting history of the triumph of engineering skill and perseverance over natural obstacles in the formation of a line of road the ultimate importance of which can only be partially estimated at present. It is desirable that the attention of general readers should be directed to a book which will give them a better idea than most of the public at present have of the process of forming the rail-

* The complete section of the river given in Mr. Fleming's diagram suggests very vividly the immense lapse of time since these rivers commenced their present course. What is now sandstone rock is evidently the original "scoop," at that time probably much softer: then upon this comes the deposit of clay and the much thicker deposit of silt, and on that the new deposit of gravel which has had time to consolidate to almost the hardness of rock, and become the real bed of the stream, and receive 25 ft. of more modern deposit of mud.

ways over which they travel. As the author remarks in his concluding chapter, "the traveller who is borne onwards, moving in an hour a distance which would have taken weeks to traverse through the tangled forests, scarcely casts a thought on the thousands of the sons of labour who toiled so many days and years in making smooth his path." With a chivalrous feeling of giving due credit and honour to all who have aided him in the work, the chief engineer appends a list of the whole engineering staff who have been employed on the line each year from the exploratory survey in 1864 to the completion of the line, marking in italics the names of those since deceased, to whom this last tribute becomes therefore more especially a duty. We congratulate Mr. Fleming on the successful completion of a great enterprise, and on his able and clear compilation of a history which ought to interest equally the professional and the non-professional reader, whether in regard to the constructive difficulties that have been overcome, or the social and political importance of the route that has been completed in spite of them.

THE MAINTENANCE OF ROADS AND FOOTWAYS, AND PAVING CHARGES.

Sir Gilbert Scott, in a letter to the *Times*' has drawn attention to the neglect of the vestry of the parish in which he resides to maintain and repair a certain "new" street, the houses in which have been completed for nearly two years; and he attributes the delay of the authorities in undertaking this duty to the fact that several houses are unoccupied, and "that there is no one to pay the rates."

The complaint of the eminent architect, and the admission that he seeks a remedy in the publicity afforded by a "letter to the *Times*," for want of knowing any other available means, are an apt illustration of the general uncertainty of the law on the subject, of the varying practices of different vestries, and—worse still—of the slight regard too often paid by the parish authorities to the individual interests involved, and the consequently harsh manner in which their powers are made to press upon owners, occupiers, and the ratepayers in general.

A short *résumé* of the legal enactments on the subject may be useful, therefore, in many ways.

The General Highway Act, 1835 (5 & 6 William IV., c. 50) is the principal statute upon which the general practice of parishes throughout the country is based; but for the metropolis this is supplemented by the Metropolis Local Management Act, 1855 (18 & 19 Vict., c. 120), and the amending Acts of 1856, 1858, and 1862 (the Act 19 & 20 Vict., c. 112; the Act 21 & 22 Vict., c. 104; and the Act 25 & 26 Vict., c. 102). There are other Acts incorporated with these statutes, or having special reference to the powers and duties of vestries in the metropolis, but it is not necessary for our purpose to refer here to more than one of these.

We must, however, make mention of the Act 57 Geo. III., c. 29, called the "Metropolitan General Paving Act," but generally known as "Michael Angelo Taylor's Act," which, passed in 1817, was incorporated, or so much of it as remained in force, by sec. 73 of 25 & 26 Vict. c. 102, in the Metropolis Local Management Acts. The operation of that Act was originally limited to the streets and public places then paved, or which might thereafter be paved, within the cities of London and Westminster and the borough of Southwark, and other parts included within the weekly bills of mortality, and within the parishes of St. Pancras and St. Marylebone, with certain specified exceptions; but these exceptions were abrogated, and the Act made to apply to unpaved streets, by the last-mentioned statute. "Many of the parishes comprised in the present metropolitan limits were neither within the bills of mortality, nor included among the parishes specially mentioned in that Act, but the 25 & 26 Vict., c. 102, sec. 73, has now extended many of its provisions to the whole of the Metropolitan districts." (Woolrych, "Metropolis Local Management Act," 1863, p. xxxv.)

Sections 6, 7, 8, and 9 of this Act are the only ones to which we need refer. Briefly, these sections make provision for the repair by surveyors of dangerous or defective pavements, on the requisition of the occupier or occupiers of houses rated to the relief of the poor at the sum of 50*l.* per annum.

But these sections refer only to streets already actually paved. The question which is exciting so much public feeling in different localities is the action of the vestries in dealing with roads and streets either already taken over by the parish, but not paved, or "new streets" not yet formally taken under their charge.

Under the General Highway Act (5 & 6 Will. IV., c. 50, sec. 23) it is enacted that no road made, or hereafter to be made, at the expense of any individual, "shall be deemed or taken to be a highway, which the inhabitants of any parish shall be compellable or liable to repair," *i.e.*, which shall be repaired at the expense of the rates, unless the person . . . . . proposing to dedicate such highway to the use of the public shall have made, or shall make the same in a substantial manner, to the satisfaction of the surveyor, and of any two justices of the peace; after which, certain formalities in the way of certificates have to be gone through; and after such highway has been used by the public and kept in repair by the person dedicating it, for the space of twelve calendar months, "such highway shall for ever thereafter be kept in repair by the parish in which it is situate."

The Metropolis Local Management Act, 1855, prescribes other modes by which "new streets" may be taken by vestries or district boards. It is necessary, however, to understand the exact meaning which the Legislature assigns to the terms which will be used in the consideration of this subject. The word "street" is defined to mean "any highway (except the carriage-way of any turnpike-road), and any road, bridge (not being a county bridge), lane, footway, square, court, alley, passage," &c. (sec. 250, Act of 1855). The term "new street" is (by sec. 112 of the Act of 1862) defined to "apply to and include all streets hereafter to be formed or laid out, and a part of any such street, and also all streets, the maintenance of the paving and roadway whereof had not, previously to the passing of this Act, been taken into charge and assumed by the commissioners, trustees, surveyors, or other authorities having control of the pavements or highways in the parish or place in which such streets are situate, and a part of any such street, and also all streets partly formed or laid out."

By the same section the word "pave" is made to "apply to and include the formation of the roadway or footway of any street."

The above are the only terms used, to the meaning of which any exact limits are assigned in the Acts.

Sec. 98 of 18 & 19 Vict., c. 120, gives power to every vestry and district board from time to time to cause all or any of the streets within their parish or district to be paved or repaired in such form and manner, and with such materials as they shall think fit; the work to be performed at the expense of the rates, except in cases where the freehold of any court, passage, or public place, not being a thoroughfare, is vested in the owner of any adjoining houses, when (by sec. 99) such owner is to do the work if necessary.

By sec. 105, it is enacted that "in case the owners of the houses forming the greater part of any new street laid out or made, or hereafter to be laid out or made, which is not paved to the satisfaction of the vestry or district board, be desirous of having the same paved," or if the vestry or board think it necessary to do so, the vestry shall well and sufficiently pave the same, and levy the expense on the owners of the houses forming such street, such amount to be determined by the surveyor.

This section was afterwards amended by Sec. 77 of the 25 & 26 Vict., c. 102, by which the vestry, having paved, or being about to pave, any new street, are enabled to call upon the owners of land abutting on or bounding such street to contribute towards the expenses of the paving, as well as the owners of houses therein, provided that the owners of land may be charged a less proportion of the cost than the owners of house property, if the vestry deem it just and expedient to do so.

Under these sections, it will be seen, the duties and powers of the authorities are amply enumerated. Highways the vestry of a parish is bound to keep in repair. All streets it is also bound to maintain, pave, and repair at the expense of the general rates, with certain exceptions where the cost may be levied on the occupiers. New streets, however, a vestry may cause to be "paved" at the expense of the owners of land and houses therein. The levying of the cost of this work on the owners is recognised as a just and fair act, as the owners are more interested in the proper condition of a road than any other person, until, at any rate, it becomes a public thoroughfare,—a highway,—when the public, as enjoying the use of it, are fairly called upon to maintain it, and the parish generally made to contribute towards the expense. A landlord cannot expect his house in a new street to let well if its approaches at all resemble the description given by Sir Gilbert Scott of the condition of the road which has roused his indignation. He says, "During the winter it became so alarming and terrible a quagmire that the very horses were in the habit of taking fright at it, and refusing to plunge into its depths; but not a hand was stretched out to amend it, excepting a short length, which was repaired by private persons, and excepting also, that at one time during the winter a quantity of the less liquid mud was scraped up and laid in piles by the roadside. Spring came on, and the only amendment was that brought by nature in the reduced amount of water. As summer drew on, the pools of mud were converted into deep beds of dust, reconverted into quagmires by each alternation of rain; while the heaps of mud laid up by the sides of the road during the winter became hardened, and threatened overthrow to any luckless vehicle whose wheel during the night might chance to pass over them. Now, again, autumn and the rainy season have come on. The holes, long filled with dust, are again filled with slush, and we are threatened with the same terrors which accompanied the last winter, aggravated by the greater depths to which the abysses have been worn."

In such a case as this, it is not the "occupiers," but the owners who are liable to pay the expense of paving the road; and intending occupiers should take warning by the example, and insist on the duty being performed before they take possession of houses in a new road. In any case, the vestry have the power to see the work carried out, and they ought certainly to do so.

The longer such a work is left undone, the greater is the hardship upon future owners. If houses change hands while a street is left unpaved for a long period, the future owners have a fair cause for complaint in being called upon to pay up the quota of the expense which should have fallen upon the original owners.

There are great complaints, in fact, in various parishes that all the roads are not treated in the same way; the owners, in some instances, being called upon to contribute the whole of the expense; while, in others, the work is done at the cost of the parish.

A further sense of unfair treatment is excited by the fact that certain streets are paved with York flagging, the most expensive material; while others, similarly situated, are paved with asphalte, which is less costly; and in others, again, tar-paving, a still cheaper material, is employed. When the circumstances of different streets vary, this exercise of discretion is to be applauded, and it is quite reasonable that the most serviceable material should be used in streets subject to heavy and continuous traffic, while pathways liable to little wear and tear should be paved with the less durable, and cheaper, but equally suitable, material. But where streets subject to exactly the same conditions are treated differently, and the owners are called upon to pay, in the one case, the heavy charge of York flagging, while asphalte or tar-paving would be all that was necessary, and those materials are used in adjoining streets, the complaints are manifestly well founded.

But there is one further section in the Act, 25 & 26 Vict., c. 102, viz., sec. 78, which acts with the greatest hardship, and against the exercise of which a very strong feeling exists. In South London especially this is the case, and the Lambeth vestry have brought themselves into great odium by their action in reference to particular roads under this section.

This section enacts that in case any footway laid out at the passing of the Act of 18 & 19 Vict., cap. 120, shall have been repaired by the vestry or any other body, but shall not have been flagged, and the vestry or district board shall have deemed it necessary or expedient, or shall deem it necessary or expedient that the same shall be flagged, and such vestry or board shall have flagged or shall flag the same . . . . . it shall be lawful for such vestry or board to levy the costs and expenses by a rate or rates upon the occupiers of the houses in the road, street, or part abutting on or next to the footway which shall have been so flagged."

In this section two terms are used, of which

no definition is given in the Acts, viz., "flagged," and "laid out." The street must have been "laid out" before August 14th, 1855, or the vestry cannot proceed under the section.

St. John's-road, Angell Town, Brixton, is one of the roads to which the vestry of Lambeth have been endeavouring to apply the provisions of this clause. In 1855 St. John's-road contained five houses. It now contains twenty-five houses, and is 200 yards in length. About six months ago, the vestry ordered the footways of the road to be "flagged," i.e., paved with York stone paving, and they have since called upon the occupiers to pay the costs. Up to that time the vestry had treated the road as a parish road, as it was a highway under the General Highway Act, 1835, having been dedicated under the provisions of the 23rd section of that Act quoted above; but the paths and roadway were allowed to get into a state of disrepair, and a public meeting of the inhabitants was called, in May, 1875, to urge upon the vestry the necessity of placing the street in a proper condition. Without in any way consulting the memorialists the vestry caused the flagging to be laid, and demanded the expenses from the occupiers.

The legal aspect of the question turns upon the construction to be placed upon the term "laid out." The occupiers maintain that the footpath was not laid out according to the intention of the Legislature, as there were only five houses built at the prescribed time. They contend that if "laid out" means "planned" on paper, or staked or marked out on the ground, there are many other roads in the parish which were equally "planned" many years antecedent to 1855, but which were not actually formed till very recently, and which the vestry have treated as "new streets," or have taken over and paved with flagging or otherwise at their own expense. The adjoining roads on the same estate (the "Angell Estate"), viz., the Wiltshire-road, Angell-road, and Angell Park Gardens, all of which were planned for building purposes at the same time as the St. John's-road, and which were actually completed at about the same period, have been flagged by the vestry, and the costs charged to the owners under the 105th section of 18 & 19 Vict., cap. 120, and the 77th section of the Act 25 & 26 Vict., cap. 102.

As a contribution towards ascertaining the real meaning of the words "laid out," we may point out that they are used in sec. 105 of 18 & 19 Vict., cap. 120, where "the owner or owners of the houses forming the greater part of any new street *laid out* or made," may call upon the vestry to pave the same, or the vestry may do so when they deem it necessary, and make the owners pay the costs. Now, no owner would incur this expense sooner than he could help; and he would not ask the vestry to pave a street which had only five houses built out of a possible thirty; for, under that section, before it was amended by sec. 77 of 25 & 26 Vict., cap. 102, the owner of say the five houses built would have had to pay the whole cost of paving the total length of street available for, perhaps, thirty or three hundred houses. The Legislature, therefore, could not have intended that the words should refer to the existence of the road on paper, but to its existence with houses along its whole length, or, at least, for practical purposes, for its whole length. Otherwise, where five houses were built out of a possible thirty, and the vestry chose to think the road should be paved, then they could have paved its entire length, and charged the expense to the unlucky owner of the five houses!

Had any other material besides "flagging" been used, the vestry must have performed the work at its own cost; and in many similar roads and streets in the neighbourhood, whose history is precisely identical with that of St. John's-road, tar-paving has been laid, and the costs charged to the general rates. The use of stone paving is said to be as unnecessary in the case of the St. John's-road, as in that of the other streets, and it is considered a hardship that so expensive a material should have been used when tar-paving would have sufficed.

When the above (78th) section was passed, asphalte and tar paving had not come into use, and "flagging" was recognised as the only permanent method of paving a path. It was, in fact, a choice between gravel paths and York pavement. At the present time, however, asphalte is superseding York paving, both on account of its relative cheapness and its perfect suitability and durability under the hardest foot-traffic. Tar-paving is now used as a substitute in paths where the traffic is less heavy. It is a question, therefore, whether the literal expression in the Act has not become obsolete, as the intention of the Legislature evidently was to secure the most lasting mode of pavement,—which would now be equally secured by the use of asphalte. If the literal reading of the Act is to be enforced, the vestry here are legally right in their claim, provided they are right in their reading of the words "laid out." But, if they are right, it would be equally lawful for them to have paved St. John's-road with asphalte, at the parish expense, and years afterwards to tear up the asphalte, and lay down "flagging," and *then* to claim the costs from the occupiers, because the road was "laid out" (otherwise planned) in 1855, and because it had not been "flagged" (otherwise paved with an arbitrary mode of paving which was no better than the asphalte).

Such a proceeding would not be tolerated, and no vestry would attempt to carry it out. It would, however, be perfectly lawful, though not equitable. Under present circumstances, the vestry should temper legality with equity, and not insist on their claim.

Permanent public improvements of this sort are in all cases effected either at the public expense or at the expense of the owners of the property affected; and there is no other instance in which the costs of such works can be levied on the occupiers unless they have the power to recover from the owners. In the present case, many of the houses have changed hands, and the purchasers have no doubt given full value for the property, without taking into consideration the chance of such an expense hanging over them in the future. Occupiers have given full rents for their houses, without counting that such a charge was impending. Rents, therefore, have been maintained at their fullest figures, and the rates paid have consequently been heavy. Had there been any general idea that the present charge would be made, occupiers would have stipulated for reduced rents, and the rates would therefore have been less. To receive the full rates, part of which is applied to "paving purposes," and then to make a special charge for the special paving operation, is therefore an unjust act on the part of the vestry. The present rateable value of the houses in St. John's-road is 1,499*l*. In the year 1876 they will contribute about 122*l*. towards the General Purposes Rate, and in past years they have contributed in proportion. In other words, the vestry have been receiving heavy rates towards paving charges, which they would not have received if the present charge had been anticipated.

We have gone fully into particulars, and have found it best to argue upon a specific grievance, rather than to take the abstract question, as illustrating more forcibly the point to which we referred at the commencement of this article, viz., the hardship which is inflicted by the varying provisions of the law, and the conflicting action of different vestries, or of the same vestry in different cases. Not that St. John's-road is the only case to which we could refer; there are other similar cases, though this is in every sense a typical one.

We would here point out that the provisions of the law are, as will be seen from the above recapitulation, chiefly permissive, and not absolute. The only instance in which the directions of the Act are imperative is under section 105 of 18 & 19 Vict., cap. 120 (amended by section 77 of 25 & 26 Vict., cap. 102). Here the enactments *shall* be carried out. In all other cases the powers are permissive merely: "It shall be lawful" are the words used. This fact points to the probability of cases occurring where an absolute enactment would be harsh in its application; and in such instances the Legislature has wisely left it to the discretion of the authorities to carry out the law in the most equitable manner, trusting to their judgment not to abuse the confidence placed in them.

The Metropolis Valuation.—On Saturday a Parliamentary paper, extending to twenty-two folio pages, was issued as to the valuation lists of the Poor Law Unions in England and Wales. With regard to the area comprised in the metropolis, the estimated rental, as settled in the valuation list in force at Lady-day, 1874, was 25,148,033*l*., and last year 25,574,366*l*. The rateable value settled in 1874 was 20,672,765*l*., and in 1875, 21,019,507*l*. The difference in the two years was, increase 356,212*l*., and decrease 9,470*l*.

PROGRESS AT THE PARIS INTERNATIONAL EXHIBITION BUILDING.

The embanking and masonry work on the Champ de Mars, estimated by the administration at 3,100,000 francs, has been adjudged to M. Delauny, who accepted the above price, with a reduction of 10·50 per cent., and providing the required security of 100,000 francs. The construction of administrative offices and medical posts on the Champ de Mars and the Trocadero has been entrusted to M. Borgeot, at a total cost of 22,100 francs.

M. Krantz has been busily occupied in definitely selecting the members of the Exhibition committee for the department of the Seine. The duties of these gentlemen will be more arduous and delicate than those of the committees of the other departments, since Paris furnishes the greater number of French exhibitors, and the rejection or acceptance of inventions being at their discretion, considerable care will be required in selecting men known for their competency, sound judgment, and impartiality.

Two Italian delegates, Cammandant Ellena and Professor Basile, accompanied by M. George Berger, director of the foreign sections, had an interview with M. Krantz on Saturday last, to solicit more space, since Italy desires to take a large share in the Exhibition; they also approved of an international façade to take up the whole length of the grand avenue in the interior, which separates the foreign sections from the fine-art buildings.

The architecture which will be chosen for that portion opposite the Italian department will be selected from the purest specimens of the work of sixteenth century. In Austria, 370 manufacturers have already inscribed their names to take part in the Exhibition.

A THOUGHT OR TWO ABOUT CONSTANTINOPLE.

Now that "Eastern" matters, to use that very comprehensive and expressive term, are so much before the world, it may, perchance, be of some interest to make note of a few things which mark the Oriental man's ways of work, as distinguished from those whose lot in life has been cast in less heated and less sunlit paths. It is really wonderful to think of how slender the information is as to Eastern matters and manners and ways of life, considering the amount of talk there is every now and then about them. Man, we are sometimes told, is the same everywhere, and so, indeed, he may be, but his actions and ways of life must needs differ, as he finds himself under diverse conditions, and under another sun, and under the dire necessity of providing for such different conditions. Many may, perchance, think that this subject is trite, and the matter of it all but exhausted, but it is not so,—very far from it; it can hardly be said to be fairly commenced, if we go at all to the heart of the matter. Humanity, in a broad sense, is of course pretty much the same all the wide world over, but diverse conditions and climate create such differences in detail that the broad principle all but disappears, and races of men are seen to differ in their modes of work, in arts, in the art of living, and in daily existence, as distinct animals differ from each other,—a subject of no small import just now, when the tendency of the dominant world is to level all things, and to induce uniformity everywhere.

In the first place,—and it will evidence how much is wanting, in spite of the multitude of books on matters connected with the "East," to use that general term,—it is not a little strange to find how little it is that we really know of so remarkable and world-famous a city as Constantinople! The world of to-day is just now a good deal interested in that famous city, and in the actions of those who now possess it. How long they will hold it, who shall say? It is thoroughly typical of an Eastern city, or perhaps we should rather phrase it, as more nearly descriptive, a Southern city. We have had some special means of getting a little insight into the specialities and peculiarities of this famous city, or congeries of narrow lanes and ways. They are all typical of the past, and most surely the present is fast doing away with them, and the day will come when the city of the Sultan, as it was, or even now is, will disappear totally, and the future city will differ but little in street arrangement and laying out, and house planning and building, from that of any other newly-built and modern collection of buildings. The

charm and poetry of the city, even as it now is, and has been, lies in the main, it must needs be admitted, in its very inconvenience, and in the confusion of its arrangement, if the term may be allowed. Nothing can be more irregular and tortuous than its lines of ways and streets, without plan, and accidental as are the paths through a primeval forest. The narrow water-course which runs through the centre of it is quite straight and regular, compared with the direction and course of its wayward streets. A good and correct plan of Constantinople, as it is, would be a good and useful thing to have, and would be of infinite value in the future as well as now.

Constantinople is about thirteen miles round, and is enclosed by walls on the western, or land side. The "Harbour," or Golden Horn, on the north, divides it from Galata, and the Bosphorus divides it from Scutari. These are properly but suburbs, but make up together the city of Constantinople. It would be quite impossible to imagine a site better fitted for the building of an imperial city on. Nothing would seem to be wanting; and it is no wonder that the eye of the world is every now and then fixed on it. It may be as well to mention in passing that the population of this imperial city is about half a million, and is made up of a somewhat motley group—of Greeks, Armenians, Jews, Arabs, "Europeans," and Turks; the Turks making up, as it would seem, about one-half of the population. It must be needless to say that the city stands on the site of antique Byzantium, founded 656 B.C. But long before Byzantium, even, there must needs have been a colony of some sort in such a spot of earth as this, and the first building on it of human habitations may have been of the "stone age," and by rude men who have left no record. But we have here to deal with the immediate present, and to find out, if possible, what there is artistically of worth, and how far it is to be regretted, if it should by any cause disappear without due record being first made of it. Many an antique city has thus disappeared, and how much has the world lost thereby?

It would be difficult within a short notice to give an adequate idea of a place so different from all things about us. The total absence of churches, bells, and clocks, to begin with. The Moslem divides his day and night into twenty-four hours, it is true; but *his* day *begins* with the *sunset*. An hour after sunset it is one o'clock, a somewhat awkward but certainly very natural way of noting time, the sun-setting being sufficiently remarkable everywhere. It is at sunset, therefore, that the "call to prayer" is made from the galleries of the mosque minarets, and not at any one stated or set hour, and is thus made not a little significant. The absence of churches and clocks, therefore, must make the city strange if nothing else did so. Then there is,—what, indeed, was to be expected,—the narrowness and tortuous character of the streets and ways, where anything in the way of plan or arrangement never could have crossed the minds of those who built the houses or dwellings which line them. They can only be compared to the irregular way across an uneven field, with cottages built close to the edge of it, as the traffic across got year by year to be thicker and thicker. Each street of the city is a perfect zigzag, and a straight line is not to be found. Indeed, there is a total absence of "planning" in any sense. From east to west the city is about three miles and a half, while from north to south it is about three miles. The Golden Horn divides this main part of the city from Galata on the north; while the Bosphorus divides it, as we said, from Scutari. It is necessary to note this, as the Bosphorus is half a mile wide in parts, and the Bosphorus is more than a mile wide, so that there are, in fact, *three* towns, all of them making up the city. A finer site for an imperial city there could not be, nor a happier combination and grouping of natural surroundings. It is walled on the west or land side. We are here interesting ourselves more especially in this city as an Oriental city, and do not touch on the "improvements" going on, which will no doubt in time do away with its special character. It is in the narrow streets, in the strange-looking bazaars, in the inns or "khans," and in the mosques, and in all that which improvement will do away with, that the real and individual and Oriental interest of the place lies; and if not worth the keeping it is at least worth keeping the remembrance of, and thus to remind the world that very much of it yet exists.

As to the *streets* of Constantinople, as we have already hinted, they will but just bear the name,—they are rather long and crooked lanes, with low, timber-built houses; and, contrasted with like streets here, with straight and uniformly-built lines of brick-built small houses, would look but poorly. Much is sacrificed, doubtless, to the picturesque in the streets or ways of Constantinople. An Oriental "bazaar" is but little else than a covered-in street, with the goods exposed on either side of it, and it needs sunshine,—and powerful sunshine, too,—when a ray here and there does the work of the broad and evenly-distributed daylight elsewhere. Thus the elements of the "picturesque" always are here combined in full force, and it is no wonder that such a city, however strange and outlandish it may appear to many, makes the impression that it always does. It makes a powerful appeal to the artistic eye, and blinds it to all defects.

We must not forget the "fountains," those wells and springs of living waters for which nothing can make up in a sunlit spot. Here in Constantinople they are especially appropriate and grateful, and it is to be hoped that "improvement,"—the at times too eager spirit of improvement,—will pass them by. The great aqueduct here, built by Adrian, which supplied the cisterns, was repaired and added to by Solyman the Magnificent. It may here be noted how the ways of men change as the world progresses. In the rough old days of it, all that possibly could be seen was left visible, as in these aqueducts and flowing water-ways. Now the effort always is to hide such utilities as far as may be, and if not that, to disguise them in some way or other. A raised cistern of water here, and now-a-days, as at a railway-station, is simply a square unsightly iron box, put as much as possible out of sight. In the old days of the world, in Classic times, and under Oriental management, these *utilities* were and are beautified, and made to show themselves, not as a something else, but just what they are. "Improved" Constantinople will, and must needs be, full of such improvements, but such improvements will do away with all that which once filled their place, and helped to give the city its special character. The *old* "Serai," it may here be noted, must yet contain a mine of *precedent*, and may be, as the new Serai at the mouth of the Bosphorus supersedes it, a fair example of an Oriental and royal abode, and in parts, at least, in its original state. Parts of it in neglected places may be as well worth the looking at and study as the Spanish Alhambra itself.

It would seem a pity, therefore, that some vigorous effort is not made, before it is too late to do anything, to get systematically at the many curious and out-of-the-way antiquarianisms of this really remarkable and exceptional city at its present,—its past remains, and antiquities, whatever they may be. It would well reward any well-to-do society to effect this, even partially. A correct plan or map of the city would be not a little interesting, showing the places of its public buildings, and the ways and turnings of its many and nameless streets and lanes. We need but hint at the interest to be found in its nobler buildings, whether originally Pagan, or Christian, or purely Mahometan, all things in Constantinople being, as we are assured on all hands, in a state of half ruin and neglect: we must needs find, in consequence of this very neglect, the *bonâ fide* work itself, ruinous and neglected and uncared for may be, but in no other way altered or changed. Indeed, it is in such a place that there may be seen the handwork and the "writing" of the original artists and workmen, rude and in condition of ruin, but true and genuine. The city of the Sultan must needs, like all earthly things, pass away in time, and give place to the new, but a true record and remembrance of it may be useful, even to those who may have to rebuild it in another style of art, and under such different conditions, and in so widely different a phase of the world's history from that in which this Oriental city has until these days existed, and was founded.

Suggestion for Paris.—Those who are commencing the construction of the International Exhibition building in Paris should recollect that a good many cases of typhoid malarial fever, at the Exhibition in Philadelphia, caused by the confessedly bad drainage of the grounds, have occurred among those who are employed about the grounds and buildings day and night, particularly among the Centennial guards. Even exhibitors who are in the building during the day only have not escaped.

ART AT THE LIVERPOOL CONGRESS OF THE SOCIAL SCIENCE ASSOCIATION.

At the first day's meeting of the Art Department (the 12th), Mr. E. M. Ward, R.A., in the chair, the special question for discussion was, "What are the best Methods of securing the Improvement of Street Architecture, especially as regards its Connexion with Public Buildings?"

Mr. J. J. Stevenson, who read the first paper on the question, said he was unable to fulfil the object proposed of discussing the influence of architecture, or of any other art, on the civilisation, education, or industrial development of the people; for art of any kind was best cultivated for its own sake, without *arrière pensée* of moral or utilitarian results, and was worth cultivating, even though it should not further develop our industry or create an increased demand for our manufactured goods. He should, therefore, take for granted in the discussion that art, like virtue, was its own reward. Mr. Stevenson having expressed his intention to confine himself to the subject of street architecture, without regard to public buildings, proceeded to describe our modern street architecture, tracing its different phases, and especially pointing out how the architectural appearance of our streets has been influenced by the requirements of ground landlords, by Building Acts, and by municipal regulations. Mr. Stevenson spoke with emphasis of the feeling of depression which the monotonous architecture of modern streets produces. Everywhere we found the same dull monotony of sad colour, the same weary repetition for miles of one design for door and windows, the same interminable straight line of street without break of skyline, or the slightest turn to give light or shadow. But in an old town, if it had not been improved and modernised, every new turn made a new picture: every house had its own identity, marked by some pretty feature of carved door or projecting window, or fantastic gable, looking as if each man had built his own and had taken pleasure in it. The present monotony in street architecture became common in the last century, when the prevailing style was that of Wimpole-street, "the long unlovely street," as Tennyson calls it. In this century, this style having been felt to be too dull, ground landlords insisted on bright colour and more ornament, and the "palatial expedient" was adopted, but failed. Mr. Stevenson condemned the modern practice of using stucco and cement for columns, windows, and cornices, and declared that the general result was the most dismal which the art of architecture had yet attained in the whole course of human history. But the reign of cement and stucco seemed over. The latest phase of street regulations was to allow red bricks only for the fronts; but several houses had lately been built in London in which people had freely followed their own taste in design, with the result of producing some excellent specimens, which gave interest and beauty to our streets. The advantages of freedom would, of course, depend much on how it was used. It might give opportunity for exhibiting ignorance and vulgarity; but he preferred freedom, with its risks of going wrong, to the safety of despotism. To build streets irregularly, with gentle curves and angles, was, of any single proposal, that which would most improve our street architecture. As to colour and materials, it was a pretty safe rule that they should not be such as would get to look dirty, for our new streets were mostly built in smoky, thriving neighbourhoods. Happily, good colour was not dependent on grand and expensive materials, but on a right use of the simplest.

Mr. W. H. White read an able paper on the same subject, and which we printed in our last issue.

Mr. Geo. Godwin (responding to the chairman) said that both speakers naturally enough had, as part of their reply to the special question, said, "Call in an architect." He would occupy the few minutes allowed to a speaker by commenting on some recent observations made by a distinguished scientific man, which bore forcibly on the question. He had recently received the report of an address delivered by Professor Huxley on the occasion of founding the John Hopkins University in Baltimore, wherein he had read, he must confess with some indignation, the following remarks:—

"If I may venture" (said Professor Huxley) "to give advice in a region which goes out of my proper competency, I would say that whenever you do begin to build, get an *honest bricklayer*, and make him build you just such rooms as you really want. And a century hence, when you have built all your laboratories, endowed all your

professors, and have the finest library that can be imagined, then if you have a few hundred thousand dollars you don't know what to do with, send for an architect, and tell him to put up a façade."

Now this, the speaker maintained, showed great want of judgment. Did Professor Huxley really think all the varied arrangements necessary for university buildings could best be made by a bricklayer? Was a century hence time enough to make such buildings fitting, decent, and delightful? Look at the mischief such an observation did. If a great university was not to send for the man of culture and taste, was not to think of beauty, still less need an individual do so. This sneer had been sent far and wide through the States, and would work evil. It was an example of the insolence (he did not use the word in an offensive sense: he had the highest respect for Professor Huxley) with which pure science was too ready to treat pure art. Putting aside the questionable emphasis on "*honest* bricklayer," he was ready to maintain that beauty was of the highest kind of utility. Moreover, he believed, as quaintly said by Spencer, that by the study of the beautiful, some might—

> ——"Lift themselves up hyer,
> And learn to love, with zealous humble duty,
> The eternal fountain of that heavenly Beauty."

Mr. Charles Lamport, in continuing the discussion, contended that, as regards architecture, utility is the only beauty. In the finest Greek buildings there was no single feature contributed for the purposes of what is called pure beauty, and the character of the architecture was rectilinear. He quoted, with approval, the saying of wise old Fuller—that houses should be built to be lived in, not to be looked at.

Sir Walter Stirling controverted the opinions of the last speaker, and remarked that the chief aim of the architect should be to exercise his skill in combining beauty with utility.

Miss Becker said that, as coming from Manchester, she might, perhaps, be allowed to say a word or two in reference to what had struck her as an interesting and valuable suggestion, viz., that public buildings in great towns should be made of some material that would wash. It was, in manufacturing towns, a great pity to see beautiful work and beautiful material placed in a situation where they must necessarily become blackened and spoiled in the course of a very few years. At a corner of one of the streets in Manchester was a statue of John Dalton, which was originally of pure white marble, but now had the reputation of being a bronze statue. The corporation of Manchester had lately erected a magnificent town-hall, and had put upon the façade four elaborately-carved stone statues. Now, there existed an Act for preventing the nuisance arising from the black smoke of the manufactories. This Act had been allowed to become a dead letter in Manchester, but, happily, the Corporation, in order to prevent their new town-hall being spoiled, had resolved to put it in force.

A few remarks having been made by Mr. Douglas Galton, there was a short adjournment for luncheon. On the reassembling of the section, the discussion was resumed by

Mr. Traice, of Manchester, who defended Professor Huxley from Mr. Godwin's criticisms, and expressed his opinion that the Professor did not intend that his remarks on the occasion in question should be taken literally, but *cum grano salis*. Those who knew Professor Huxley knew how a sly twinkle of the eye qualified remarks which, if taken seriously, would be open to animadversion.

Mr. Storr, of London, referred to the cases of Liverpool, which had built St. George's Hall, and Manchester, which was building its new town-hall, where the local government of a very large area, and having command of very large resources, were making the best use they possibly could of the existing architectural skill of the present day. They had operating upon that local authority the moral and social pressure that had been spoken of. These two illustrations furnished, in his opinion, the only practical clue to anything like a radical reformation in regard to street architecture, and particularly in regard to public buildings. What they wanted in London was a form of local self-government which should have the confidence of the people, and then they would have that moral and social pressure by educated people and producing the results they were all aiming at.

Mr. Stevenson, replying to the discussion, took occasion to speak of St. George's Hall as one of the noblest and greatest buildings that had been produced in modern times. It seemed somewhat singular that a building like that had not had more influence on the architecture around it, and especially that its noble and grand simplicity had not been imported into buildings recently erected in its neighbourhood.

The Chairman said it had given him the greatest satisfaction to preside on that occasion, although in the character of a *locum tenens*. It was the first time that an Art Department had been organised in connexion with the Social Science Congress, and he felt that anybody especially connected with art ought to give his sanction to or endeavour to be present upon so important an occasion. It had been unfortunately the custom of this country to consider art as a very secondary matter. He had attended a great number of public dinners, and he had always found that the toast of "The Fine Arts" was placed at the bottom of the list. He was satisfied that the formation of that section was a very desirable thing in the interests of art. With regard to what had been said as to Professor Huxley's remarks, he quite agreed with Mr. Godwin that those remarks were very unwise, especially when addressed to a people even less informed as to art matters than those of our own country.

Mural Decoration.

On the 13th, Mr. Poynter, R.A., presided. The special subject for discussion was—"How best can the Encouragement of Mural Decorations, especially Frescoes, be secured?"

The opening paper was read by Mr. W. B. Richmond. In answering the question, Mr. Richmond showed that in all great artistic, poetic, and philosophic nations this section of the fine arts had been looked on as of prime importance, and had received encouragement both from public bodies and from private individuals. He then endeavoured to point out what would be the best training for students in our local art schools. They should be prepared, in the first place, to assist masters in the art of mural painting in all its branches; and, in the second, the education should be of such a thorough nature as would enable these assistants ultimately to become masters. He also described methods of painting which he contended were adapted to mural decoration of the highest class, and in which every confidence as to durability might be placed. Mr. Richmond said that what was wanted, first and most of all, was that the mental level of the art student should be considerably raised. It should be impressed upon him that his pursuit is a very serious one, and that to excel in it requires just as much mental culture, self-command, and self-control, as in any other of the learned professions. With few exceptions, the greatest paintings of the world were mural, and the greatest minds in art had generally adopted either the method of tempera or fresco on walls on account of its rapid process, luminous quality of colour, and durability. One advantage of this style of art was that it obliged the architect and builder to design and construct in a dignified, solid, and thorough manner, and stimulated the designer and executer to produce a work which should be perfect in all its qualities. Until mural decoration on a large scale was encouraged in England, we should have no real, living, national art, nor, indeed, any school of painting of the highest order. He urged the establishment of an elaborate system of teaching and study, and in conclusion he compared the various styles of mural decoration throughout the world. In England, he believed, frescoes had failed owing to the fact that they were not for the most part really and truly frescoes, and that certain colours were used which would not compose with lime.

Mr. Cave Thomas then read a paper on the the same subject, to which we shall return.

Mr. J. C. Horsley, R.A., in speaking on the question of the State patronage of art, said that that great friend of art, the late Prince Consort, had often remarked to him that it was to the corporate bodies of England that he looked for the encouragement of modern art. He (Mr. Horsley) agreed in the main with what had been said by the previous speakers; but he could not forget that four of England's greatest painters, Hogarth, Reynolds, Gainsborough, and Turner, rose to eminence without the benefit of that severe scholastic training which those two gentlemen had so warmly advocated. He, however, admitted that if mural painting was ever to take root in this country, it must be by means of such a course of training on the part of art students. He was sorry to say that he believed climatic influences, and the smoke and fog of towns like Liverpool, were entirely destructive of fresco painting. Mr. Horsley referred, in support of this opinion, to the decay of the frescoes in the Houses of Parliament, and said that some frescoes he had executed in exactly the same manner, and with the same materials, in a house in Norfolk, were now in as perfect a condition as on the day they were painted. He could not forget the deep indebtedness of English art and artists to Lancashire during the last forty years. If Liverpool was going to take a still wider view of art, and to encourage mural painting, he heartily wished them God speed, and he could assure them they would have the support of every artist in the United Kingdom.

Mr. Leighton, R.A., said that as long as the English public gave themselves up to the seductive charms of realistic art there was very little hope that the severe style of the great heroic works of antiquity would receive encouragement.

Mr. Ward, R.A., said he should not despair of oil being used for the purposes of decoration.

The Promotion of Art an Economic Necessity for England.

Mr. P. H. Rathbone next read a paper on this subject. He began by remarking that the spread of machinery, supplanting the labour of unskilled workmen, was yearly increasing the demand for skilled and educated handicraftsmen, whilst in a few years England could not hope to retain the comparative monopoly of cheap manufactures which her coal-mines now give her. If we were to retain our trade it must be by paying more attention to the quality than to the quantity of our goods. In this strait art alone could help us, so that few would be inclined to deny the services it might render to commerce. As an example of what might thus be done, he then cited Paris, which, with neither coal nor water-power within reach, yet supports an enormous population as a manufacturing town. That Paris is the capital of France did not sufficiently explain this, for Washington is the capital of America, and history shows that France has done little for Paris compared to what Paris has done for France. The great power of the Parisian workman is that he is artistically educated beyond the work he is actually doing; he has, therefore, an ideal of perfection towards which he is always striving. He has a pride in the work he is doing, which prevents its becoming mechanical, and gives it a pecuniary value not otherwise attainable. He did not think the French were naturally an artistic nation, except in the great centres, where a love of art had been created and fostered by Government institutions. An art education gave to the workman and manufacturer the power of adapting their productions so as to provide for that thirst for novelty which was, in truth, the necessity of an inquiring age and a progressive civilisation. The economic advantages of taking the lead in this way might be even more strikingly illustrated by Lyons. The colours, shades, and even the fashions for the coming year were said to be designed by a council of bald-headed old manufacturers, whilst all others were a season behind, because, owing to the want of art education in themselves and their workmen, they were only fit to follow; not to lead. Rome, in a somewhat different way, was an instance of the same truth, for with the additional disadvantage of unhealthiness, it yet supported a large population by art manufactures. Turning to our own country, it would be found that, in spite of many advantages we had over Lyons, the silk trade of Spitalfields had declined through want of art-education in those connected with it. The decay of the straw-plaiting industry of Dunstable might also be attributed to the same cause. A more cheering view was the rise and progress of ceramic manufacture in England, much of which might be traced to the greatest of all potters, Josiah Wedgwood, and to the Great Exhibition of 1851, aided by the establishment of South Kensington Museum. The rise of the artistic glass manufactories of London, whether as regarded stained glass or table glass, was distinctly traceable to the same causes. The improvement in art-furniture, for which Mr. Morris had done so much, was most gratifying. It now only remained to discuss what had still to be done. For two reasons it was most desirable,—first, that all our handicraftsmen should have an artistic education, as the rapid spread of machinery made daily work less and less of an education; and, secondly, that it was more than ever necessary that our workmen should attain that flexibility of mind which only an artistic education could give, and which would prepare them for that change of

employment which the changed circumstances of the country might make necessary. Carving in wood, as practised by Norwegians and Swiss, modelling in clay or wax, would all be within the compass of mechanics who, with considerable leisure, were yet too fatigued with their day's work to be capable of much brain-work, even if the early age at which their education terminated did not make reading too great an effort to be a relaxation. This, if it did nothing else, would create a sound public opinion on art-matters which would keep our sculptors in order. If a taste for mural decoration was once widely spread in England, many men who now paint namby-pamby green lawns in water-colour might devote their time to making the houses of wealthy citizens so beautiful that they would be loth to leave them, and so give an element of fixity to the richer population of our great commercial centres which is much required, and which would give a living interest to the owners of houses who saw a work of art growing under their eyes which would not otherwise be aroused.

Mr. Traice said one point seemed to have escaped notice, and that was the training of the public mind to appreciate the things referred to. There was no doubt that if the public love of art was to be developed in this country as in Italy, it must spring from the people and from their institutions which fostered a taste for it. Until the people had such an appreciation of art and general good taste and judgment, they could not expect to attain the position in art they desired. He advocated the training of art workmen, and said this was one of the most important problems which the Congress had to consider. In conclusion, he said the schools of design had not done the work for which they were intended.

The discussion was continued by Mr. Stevenson, Mr. Lindsay (Belfast), Mr. Audsley, and the President, after which the section adjourned.

THE INFLUENCE OF ART ON A NATION.

In the Art Department of the Social Science Congress at Liverpool, on Saturday, Mr. E. J. Poynter, R.A., president, delivered an address.

Mr. Poynter began by saying that he found himself under the necessity of attempting, if not the solution of the question as to the effect of art upon our social system, and whether the influence of a general spirit of art were really for good, as he believed it to be, at least of bringing to their consideration the conditions under which alone art might be expected to produce that influence. It was true that on the special questions of decoration Mr. Charles Eastlake, who had made a special study of the subject, would read a paper; but although a matter full of interest, and in the highest degree worthy of attention, it could but touch only in a slight degree on such a general question as he (Mr. Poynter) had proposed, and which, put more fully, inquired in the first place, "Would the universal extension of a spirit and love of art—such a public spirit as should exact of our artists, manufacturers, and workmen that all their productions should be of the highest character for workmanship, skill, and taste—contribute to the general welfare and progress of the nation?" And in the second place—"To what extent can the cultivation and practice of art be made to take such a hold on our national life, and so permeate all classes of society, that such an end may be brought about, and that the national sentiment shall not permit of the making or exhibition of anything false in principle or offensive to taste?" And thirdly, "How can such a state of things be created?" for it certainly did not exist at present. From those who held with him that the very essence of good art was to be found in honest and good workmanship above all things, the answer to the first of these questions would doubtless be that a general diffusion of a sound artistic spirit would be an unmixed good, but they knew that opinions were sharply and strongly divided on that point, since the ideas of material progress so much in vogue were in direct opposition to the very existence of an art founded on principles apparently so obvious. To calculate, therefore, on any general artistic sentiment becoming a part of our national life would seem more hopeless now than ever, and before it could happen our national characteristics must be changed, and our beliefs in the efficacy of much that was thought essential to the progress and enlightenment and happiness of mankind must be eradicated. He would not philosophise on the question, however, but took for granted, what most persons present would concede, that the influence of a genuine art must necessarily be an influence for good. They still had before them the difficult question as to how such an influence was best to be diffused so as to take a hold of the nation at large. And first it would be necessary to inquire how far it was possible to diffuse such an influence. Was there any possibility of a genuine love of art taking such hold on people generally that it should seriously affect their habits of life? Was it possible, for instance, ever to recover amongst us the feeling which is now extinct, but of which a faint tradition lingered perhaps as late as the Great Exhibition of 1851, that it was not worth while to make furniture that would come to pieces, or to build a house which would not need repair for at least a reasonable time? In former times bad work was the exception; now it was the rule; and a piece of well-made furniture or a well-built house was an article of luxury, and must be made or built by specially trained hands. If the question was asked—Was the return to the time when every workman was also an artist possible? he would reply that it was not, under existing social conditions. That feeling of love of good work for its own sake, and of pleasure in bringing it to perfection,—which was, perhaps, the most certain evidence of genuine artistic spirit,—was not, in former times, the property of a few individuals distinguished by superior gifts and education; it was the common property of all handicraftsmen, whether possessed of original talent or not. He did not for a moment pretend that such a spirit as this had ever risen in this country to the dignity of national sentiment. At no time did he imagine that a cheap or easy mechanical substitute for labour would ever have been refused on artistic grounds. That such a state of national sentiment had existed in the world was indubitable. We had the evidence of everything that had come down to us from the best times of Greek art, that nothing short of perfection was tolerated among them; nay, more, that they were possessed of a critical faculty which would seem to have surpassed our own, so that their trained and cultivated perceptions were satisfied with nothing less than a subtlety of form and proportion, the advantages of which to our coarser senses seemed inappreciable. The Greek idea of art was not merely in adornment: it was, above everything, in completeness and consistency. It was melancholy to turn from such a state of things to our own times and surroundings, and it was only too clear that we must be content with aiming at something very far short of the Greek ideal of art in our own social life. Even then we must be satisfied if we got a tithe of what we desired. This was not the occason to inquire into the causes of the high standard of the glorious epoch of Greek art, but it was necessary to point out, however, that they can never be repeated in the world's history. The very perfection to which mechanical methods of production had been brought, and which raised works of mechanical skill almost to the level of works of art in their wonderful precision and finish, had given the death-blow to true artistic workmanship, the charm of which lay as much in the individual character given through the skill of the workman as in the invention displayed. What was now required of the skilled mechanic was not so much that he should understand how to make any particular object, as that he should know how to manage the machine by which it was made. It was useless, however, to deplore and rail against the invasion of mechanism; it would be far more worth while to see how far it can be made subservient to the principles of sound art. There could be no doubt that the worst of the eye-sores which the progress of civilisation had inflicted on our unhappy cities are the products of the art or science of engineering. That whole districts should be given up to desecration in the large towns through the invasion of railways and their appurtenances was probably unavoidable, but that a few spots favoured by picturesqueness of grouping or real architectural beauty should have their charms destroyed at one blow by some railway bridge or station, showed an amount of heartlessness on the part of the engineers who constructed them, and the public who permitted them, which would surprise us, did we not know that a large section of the community admired in their hearts what was supposed to be a fine practical preference for utility. After remarking that perhaps the most glaring results of this feeling were to be found in London, Mr. Poynter went on to say that it seemed to him neither necessary that iron railway bridges and stations should be as ugly as they were, nor that the only alternative should be, as was the generally-accepted idea among those who made them, an imitation of unsuitable architecture, or that they should be adorned with inappropriate ornaments by way of beautifying them. A notable instance of this misconception was afforded by the bridge that was built over Ludgate-hill. It was probable that the offensive form of construction that was placed there was the cheapest form of bridge that could be made. Of that he was no judge; but he was sure that an engineer who had but a little ingenuity beyond what was required for the calculation of strain and cost might have invented something which, in its original form, should have been less offensive to the eye. The view of St. Paul's up Ludgate-hill, with the small spire in the mid-distance, making a composition of the kind that delights an artist, and at the same time giving dignity by its slender proportions to the imposing mass behind, was heightened in effect by the framing of a busy and picturesque street, and seemed to unite every point that is characteristic and interesting in a great city; and the public in this case resented the offence to taste, so the company were obliged to spend a large sum of money in covering the bridge with ornament, which it was impossible could be otherwise than both unsuitable and useless. A very moderate quota of the national sentiment which he had alluded to as the property of the Greek nation would have prevented the possibility of the erection of this bridge in such a spot. He had said the use of iron was a necessity of modern engineering works, but he had no hesitation in adding that when they were obliged to intrude themselves on places already made beautiful by fine architectural features, the public and the authorities responsible to it ought to insist on the work being in harmony with the surroundings. In such a case as this an iron structure should not have been permitted at all. But there were situations where the use of iron structures was not only a necessity, but need be in no way objectionable. They had there in Liverpool a construction of which they were justly proud. The landing-stage, in the ingenuity of its structure, its admirable fitness for its purpose, and the excellence of its workmanship, combined with the picturesque accompaniments of river life, might be rightly considered in the light of a work of art; but its effect was marred, to his mind, by the ugliness of the iron bridges which connected it with the mainland. It was not too much to say that there was not the least need for their ugliness: a little more ingenuity spent in their construction might have made them not only inoffensive to the eye, but agreeable to look at. There were here no architectural features in the immediate neighbourhood; the surroundings were the wharfs and docks and warehouses, which were the glory of a great commercial city, and which had a character of their own. Any attempt to have made these bridges architecturally beautiful would not only have been out of place, but would have been wasted in such a spot; but he could quite imagine a method of constructing such works which should combine strength and lightness and elegance, without going outside the conditions and necessities of iron structure. But it gave, of course, less trouble to an engineer to make a square iron box which should be strong enough to bear the traffic, than to go out of his way to design something less objectionable. If anything of an ornamental nature appeared necessary, he was saved any further consideration by handing it over to an architect or artist to plaster with ornament. He (Mr. Poynter) would draw this conclusion, that engineering being distinctly an art of the present and the future, made up of different materials on different principles and under different conditions to any that have hitherto existed, if it was ever to have any beauty of its own, or, to put it more hopefully, if its results were ever to be less objectionable than now, it must be by seeking for such results within the necessary conditions of its existence, and not by the addition or superposition of an utterly unsuitable style of ornament drawn from past ages and a different order of things. In short, the exercise of ingenuity in work of pure utility might be made to occupy the place filled by decorative and ornamental design. Regarding works of art, properly so called, however, and those

works of manufacture in which decorative art played a more or less important part, the conditions were different. Here part of the beauty and charm would be derived from the beauty of the workmanship and the individuality given by the mind and touch of the workman—a phase of beauty to which mechanical production was death. What was it that we admired in Japanese art? No doubt the marvellous and inexhaustible fertility of invention, and the perfect rendering of natural forms; but if possible, still more, that exquisite workmanship which surpassed anything that European hands were capable of. Or, to confine ourselves to European art, wherein lay the beauty of the old Venetian glass goblet, which had the elegance and fragility of a harebell in its form, and almost its tracy-like lightness? Doubtless, in the first place, with the beauty of its design and the delicacy of its material; but did it not owe an equal charm to the taste of the handicraftsman whose skill had triumphed over the extreme difficulty of producing a perfectly beautiful form in a material requiring such rapid and dexterous treatment as molten glass? How much of that skill of hand and eye was required by the modern glass-maker or potter? His business was not to use his discretion or his natural taste in giving elegance to the form of the glass or pot he was making, but to manage the mould out of which thousands of exactly similar objects were produced; and that the manufacturer believed that a mould was a much better way of producing forms than making them by hand was certain. To an uncultivated eye the effect might be equally good, and to save labour and produce in quantities might be equally good; but the original charm had disappeared. The delicate fabric had become a mechanical production without life, made probably at a tenth of the cost, and with a tenth of the labour, but which, as far as the artistic value of its "diamond moulding" went, it was unnecessary to make at all. He was not so foolish as to suppose that mechanical reproduction could be done away with; it was part of the necessity of the times; it was certainly a result of our material progress, which we could not go back from; but, as he had already said, the conditions under which everything that was made before the introduction of machinery was, in one sense, a work of art, could not be repeated. All he should wish to be understood was, that they must not delude themselves into the belief that they could produce works of art by the substitution of machinery for hand-labour, or that the decoration of objects of common utility, by a mechanical process, could ever have any artistic value, and they would have made an immense step in advance if the public could be persuaded that it was better to have no decorations at all than such as were purely mechanical. A strong feeling for the higher forms of art had never existed in this country; or, he should say, rather, the artistic faculty had never in our race, of its own accord, leaned towards the higher forms of art. Except in architecture, we had never produced any works of higher art, we had never had of indigenous growth anything in the shape of those schools of painting and sculpture, and metal work, which sprang out of the native soil in Flanders, to say nothing of Italy. All the higher forms of art had been imported into England either by foreign artists coming to work for our native princes, or by men of taste and culture. Until within the last hundred years there was no such thing as a school of painting in England at all. But there did exist in England until lately what, indeed, was common to all the world,—the sentiment and tradition of excellence in such more homely forms of art as were applied to household furniture and fittings; and such a feeling took, of course, an English development, which gave its own character to the work produced. Except in a few solitary cases, to which he would refer, it might be said that an object of industrial art was never now produced which was satisfactory to the cultivated eye from every point of view; and what he desired to point out was, that it was only through the determination and energy, and a certain amount of self-sacrifice, on the part of those who were capable of directing the public taste,—that was to say, of artists and men of culture,—that an improvement could be considered possible. There had been great efforts in this direction made of late years by the firm of which Mr. Morris was the head, and if he referred to the work Mr. Morris had done, it was not with the object of bringing his name forward, but because he had a firm conviction that it was only by such life-long devotion on the part of artists themselves that the degrading tendency of machinery and all its accompaniments could be counteracted. There were other ways in which such a devotion might be shown amongst them—by the voluntary education and training of students, and in other ways. The French set us a noble example in this respect, for many French artists had an *atelier* where students worked, and to whom the artists devoted regularly two mornings a week without receiving any payment. The custom showed a love of art for its own sake, to which we could hardly find a parallel here. Speaking of the art-education of children, Mr. Poynter said it was not to be expected that the teaching of the rudiments of geometry and perspective and elementary freehand drawing to many thousands of children would turn them at once into artists, or even give them any artistic instinct; but it would act as other elementary education acted—it would give a chance to natures which might otherwise remain undeveloped. But in itself the learning of geometry and freehand drawing could no more be called studying art than learning the alphabet could be said to be studying literature. Both were the necessary preliminary stages for a higher culture. Speaking of the means for promoting art education, he alluded to the art schools, and added that a constant effort was being made so to arrange the Government payments to the masters that there should be the necessary inducement to lead their pupils from one stage to another, a matter which would be easy enough if the supplies were unlimited, but which was difficult when they had to be kept within bounds. It was in this way, however, that he hoped the influence of the vast machinery of the Art Department might be felt—through the chances given to children to turn their attention to art if their inclinations were in that direction; through the inducements to study offered by art classes and schools; and through the final inducements to enter into training at South Kensington as art masters, that in examinations they might diffuse their knowledge through the city. The system had its disadvantages, no doubt. According to the direction which the instruction took, its influence would be equally strong for good or for evil, and herein lay an immense responsibility. But there was another great piece of machinery which had no such risks, and by which the truest principles of taste might be diffused among all classes—through the institution and formation of museums. Here again, however, they must not deceive themselves as to the influence which they would exercise. Without previous culture, no one was likely to appreciate a work of high art; the richness and splendour of workmanship and material in a cup by Cellini would please an uneducated eye, but it needed a long apprenticeship in general and special study for the appreciation of the exquisite taste and fancy which had guided the artist. Mr. John Morley, in a speech on education lately delivered, had asked why the collection of Castellani jewels at the British Museum should not be sent to Birmingham to improve the taste of the jewellers. If it were in the least possible that the goldsmiths and jewellers would take to heart the lesson which those wonderful specimens of Greek art taught them—a lesson which he (Mr. Poynter) had tried to indicate in this paper,—namely, that exquisite workmanship was the essence of fine-art manufacture, and in jewelry, above all things, then no risk, perhaps, would be too great to run in the cause; but it was far too probable that the only result would a "cribbing" of a few of the forms to produce a novelty, and the executing them in a coarse and barbarous manner. But museums had another important function—the preservation of relics of antiquity, which, if lost, neither money nor labour could restore. The collection and preservation of objects of art could not but have a refining and educating effect on those whose tastes were sufficiently raised by cultivation to appreciate them; and to supply local museums and art schools with the best specimens available was one of the most important duties of the South Kensington Museum. He could see three ways in which the influence of art might be brought to bear on our social system,—through the return, if only partial, to the bygone excellence of workmanship; through the spread of education; and by affording art students, throughout the kingdom, the opportunity of seeing fine works of different periods and styles. We should not deceive ourselves, however, as to the extent to which public taste might be influenced through these means, for there was an immense mass of the people of all classes who were wholly indifferent as to whether their surroundings were ugly or beautiful, and who thought only of their personal comfort or luxury. Those who were really interested in art formed but a very small portion of the whole mass of the nation, who were for the most part animated by other interests, indifferent to, and in many cases opposed to and irreconcilable with the interests of art. It was encouraging to remember, however, that at no part of the world's history, except during the cultivation of Greek art, had a nation been wholly artistic. In Italy, even at the best time, the mass of the people were probably indifferent, and the love of art was confined to artists, artificers, and the cultivated class. Although he did not see the possibility, under existing conditions, of so complete a diffusion of taste for art among us as would make us an artistic race, yet there was no reason why it should not be the property of the cultivated class, and of all art workmen, as it was in Italy; and it was to be remembered that the spirit of art would of itself assist in the increase of this cultivated class, and in the spread of the cultivation by which it lived. "I have not," said Mr. Poynter, in conclusion, "entered into the question of painting, which is, as far as the imaginative powers are concerned, of course the highest and most important branch of the art; in the first place, because I have so often lectured on the subject, and in the second, because there is a fear, through the high marketable value of pictures, that all the best artistic talent of the country is rushing in that direction, and I was anxious to give prominence to the social and economic side of the subject. There is, however, no reason why this great art should not take here as high a place as in any country,—I might almost say as in any time. The English, if they have not the marvellous technical facility of the French, are far superior in poetic feeling and imagination; and the independence of thought which has in some respects barred the way to the formation of a definite school in England is combined in our national character with much readiness to learn from other countries. If we can only acquire sufficient love for art to enable us to resist the enervating influence of an indiscriminating public and a too ready market, the art of painting may receive amongst us its highest development."

HEALTH QUESTIONS AT THE SOCIAL SCIENCE CONGRESS, LIVERPOOL.

Noxious Vapours and Smoke.

The special question was,—"What Amendments are required in the Legislation necessary to prevent the Evils arising from Noxious Vapours and Smoke." The section met under the presidency of Mr. Thomas Hawksley, C.E.

Dr. Angus Smith (Manchester) read a paper on the subject. He said that the progress of chymical manufactures, and the alkali manufacture pre-eminently, were intimately connected with the progress, civilisation, and refinement of the country. It was said that these manufactures destroyed crops, trees, and vegetation generally, and the charge was not without foundation. In 1863 the capital of the alkali trade in the kingdom was equal to about 2,000,000*l.*, the total amount of salt used being annually 254,000 tons; now nearly that amount was used in the crowded collection of works at Widnes, whilst that was only 39 per cent. of the total used by the whole trade. It was needful to consider the actual nature of the damage done to the land. They must remember that that was not a money loss, except perhaps in a few cases. He had never heard of any piece of land selling at a diminishing rate because of chymical works in Lancashire, but he had heard of a great deal selling at a much increased rate. So far as could be made out, under the new Act crops had suffered very little, and in places where they used to suffer there were no complaints this year. Landowners might still, however, say, "We know you do us good by increasing the value of land, but why do us evil to counteract it? Send all the chymical works to some corner by themselves and let them rage together." Such a proposal might once have been reasonable, but it was now out of all question. It was completely made out that the sulphur acids from chymical works now far exceeded the muriatic acid. The sulphur from common coal was a very large quantity, and when chimneys were numerous and near, the amount given out was very destructive, so that, for example, near the centre of a town, such as

Manchester, trees would not grow at all. They burned about one hundred million tons of coal annually, and if it contained one per cent. of volatilised sulphur they had three million tons of the strongest vitriol poured into the air, most of it coming down on themselves and the land. The combustion of smoke, that was, of the black portion, was very desirable. It was known to be very easy in most cases, and the introduction of mechanical stokers was a duty in very many cases, probably for the majority of furnaces. It was very much wanted for the benefit also of the stokers, who, especially in sea vessels, were exposed to labour such as ought not to be given by a nation that rejoiced in putting down slavery. Condensation in alkali works was advancing so rapidly that it might even now be considered advisable that it should be completed in all new works from this time, and certainly so if the newer furnaces acted as they promised. The difficulties as to copper works were greatly removed, and it would be no hardship to insist that every copper worker should condense at least as well as Messrs. Vivian or Messrs. Newton & Co. did. They might then think of the gases of glassworks. At present he believed they were quite able to deal with those of potteries and cement works. The actual effect of any of these gases on the health of the population was not well known. They did not prevent to any known extent the existence of zymotic diseases, as some persons very naturally expected. The gases were not strong enough to prevent infection, and the total effect in a chymical town was not clearly known. In St. Helen's the mortality last year was 23·9. Still the evidence seemed to be against the gases, and very clearly in the case of the workmen. Gases, from putrefaction, were better known to be hurtful to health, but people did not avoid them so much, because they did not affect the senses so readily. It was better to prevent the formation of gases near them than to remove them when found. After giving a description of furnaces and various processes, Dr. Smith said all works giving out offensive gases ought to be put under inspection for a time, when complained of, and all those giving out the acids mentioned should be included under constant inspection. Certain facilities should be given in the case of actions for damages so as to include a number of persons as doing an injury, and persons should pay in proportion to the injury so far as could be ascertained.

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The Rev. R. H. Lundie observed that one of the difficulties mentioned in Mr. Fuller's paper had been to a great extent met in Liverpool by the establishment of cocoa-rooms for the working classes, no fewer than fourteen of these rooms having been opened within the last twelve months.

EXHIBITION OF SANITARY AND DOMESTIC APPLIANCES, LIVERPOOL.

During the past week large numbers of people have visited the exhibition in the Drill-hall, St. Anne-street, which was opened on Wednesday in last week, in connexion with the Social Science Congress, and on Saturday evening the place was so crowded that locomotion from stand to stand was a matter of no little difficulty. The size of the building was far from sufficient for the number and varied character of the exhibits, and it is much to be regretted that the endeavour to obtain Victoria Hall, which was specially erected for the religious services of Messrs. Moody & Sankey, proved ineffectual, as that commodious building would not only have proved to be most admirably adapted for the purpose, so far as accommodation was concerned, but it would also have been much more central for visitors and a greater advantage to the exhibitors. As it is, many of the exhibits could not be properly inspected on account of being too much crowded, and several exhibitors were obliged to keep back many articles for want of room on their stalls to show them. Mr. R. T. Chaplin, of London, had the management of the exhibition; but it was mainly due, as before, to the exertions of Mr. James Robinson. The ceremony of opening the exhibition took place at eleven o'clock, and was very simple.

Mr. Godwin, being called to the chair, said the exhibition was not exactly a portion of the Social Science Association's programme, but it was an offshoot, and he was sure that all who had attended previous exhibitions strongly desired that it should be made part of the actual business of the Association. Whatever might be said of wild theories mooted elsewhere, at that exhibition they had only hard facts to deal with, which could be well examined and at once disposed of. After stating that the number of exhibitors was upwards of 100, he proceeded to mention some of the most important sanitary appliances to be found in the exhibition. Mr. Hogg's models for ventilation well deserved examination. Mr. Cole's apparatus for lowering and raising windows would be found very useful where the sashes were heavy or difficult of access. Messrs. John Powell & Co. had sent some capital samples of building materials and painted tiling; and Messrs. Doulton a charming collection of the artistic ware they were producing. William Green's Climax Coal Saver had obtained approval from a public committee. Mr. Henry Stott's plans for the ventilation of ships appeared to be excellent; but the application of his system to the ventilation of sewers seemed not to be without objections. Messrs. Leoni & Co. showed that cooking could be done by gas with even a saving of money. Mr. Goodall's exhibit of concrete flooring, and Mr. Northcroft's Fire-resisting Compound Arched Floors and Roofs, were described and commented on. Alluding to the importance of having dry houses, he referred to the exhibits of the Silicate Paint Company, Seel-street, Liverpool, and said when they recollected the enormous amount of injury that lead-paint did every year, and the number of persons who were damaged most seriously by it, and the difficulty of keeping damp out of houses, and when they found that this company claimed to meet these two points, their preparations were of importance. Another useful appliance was Harrison & Wood's domestic flushing plug, which was a very small article, but from which, if largely used throughout Liverpool, considerable advantage would result. The Ladies' Sanitary Association had a stall, and their work ought to come under the notice of the ladies of Liverpool. They were quietly doing a good deal of work, and might do more if they were aided by committees established in such large towns as Liverpool and Manchester. After mentioning other of the inven-

works of manufacture in which decorative art played a more or less important part, the conditions were different. Here part of the beauty and charm would be derived from the beauty of the workmanship and the individuality given by the mind and touch of the workman—a phase of beauty to which mechanical production was death. What was it that we admired in Japanese art? No doubt the marvellous and inexhaustible fertility of invention, and the perfect rendering of natural forms; but if possible, still more, that exquisite workmanship which surpassed anything that European hands were capable of. Or, to confine ourselves to European art, wherein lay the beauty of the old Venetian glass goblet, which had the elegance and fragility of a harebell in its stem, and almost its fancy-like lightness? Doubtless, in the first place, with the beauty of its design and the delicacy of its material; but did it not owe an equal charm to the taste of the handicraftsman whose skill had triumphed over the extreme difficulty of producing a perfectly beautiful form in a material requiring such rapid and dexterous treatment as molten glass? How much of that skill of hand and eye was required by the modern glass-maker or potter? His business was not to use his discretion or his natural taste in giving elegance to the form of the glass or pot he was making, but to manage the mould out of which thousands of exactly similar objects were produced; and that the manufacturer believed that a mould was a much better way of producing forms than making them by hand was certain. To an uncultivated eye the effect might be equally good, and to save labour and produce in quantities might be equally good; but the original charm had disappeared. The delicate fabric had become a mechanical production without life, made probably at a tenth of the cost, and with a tenth of the labour, but which, as far as the artistic value of its "diamond moulding" went, it was unnecessary to make at all. He was not so foolish as to suppose that mechanical reproduction could be done away with; it was part of the necessity of the times; it was certainly a result of our material progress, which we could not go back from; but, as he had already said, the conditions under which everything that was made before the introduction of machinery was, in one sense, a work of art, could not be repeated. All he should wish to be understood was, that they must not delude themselves into the belief that they could produce works of art by the substitution of machinery for hand-labour, or that the decoration of objects of common utility, by a mechanical process, could ever have any artistic value, and they would have made an immense step in advance if the public could be persuaded that it was better to have no decorations at all than such as were purely mechanical. A strong feeling for the higher forms of art had never existed in this country; or, he should say, rather, the artistic faculty had never in our race, of its own accord, leaned towards the higher forms of art. Except in architecture, we had never produced any works of higher art, we had never had of indigenous growth anything in the shape of those schools of painting and sculpture, and metal work, which sprang out of the native soil in Flanders, to say nothing of Italy. All the higher forms of art had been imported into England either by foreign artists coming to work for our native princes, or by men of taste and culture. Until within the last hundred years there was no such thing as a school of painting in England at all. But there did exist in England until lately what, indeed, was common to all the world,—the sentiment and tradition of excellence in such more homely forms of art as were applied to household furniture and fittings; and such a feeling took, of course, an English development, which gave its own character to the work produced. Except in a few solitary cases, to which he would refer, it might be said that an object of industrial art was never now produced which was satisfactory to the cultivated eye from every point of view; and what he desired to point out was, that it was only through the determination and energy, and a certain amount of self-sacrifice, on the part of those who were capable of directing the public taste,—that was to say, of artists and men of culture,—that an improvement could be considered possible. There had been great efforts in this direction made of late years by the firm of which Mr. Morris was the head, and if he referred to the work Mr. Morris had done, it was not with the object of bringing his name forward, but because he had a firm conviction that it was only by such life-long devotion on the part of artists themselves that the degrading tendency of mechanism and all its accompaniments could be counteracted. There were other ways in which such a devotion might be shown amongst them—by the voluntary education and training of students, and in other ways. The French set us a noble example in this respect, for many French artists had an *atelier* where students worked, and to whom the artists devoted regularly two mornings a week without receiving any payment. The custom showed a love of art for its own sake, to which we could hardly find a parallel here. Speaking of the art-education of children, Mr. Poynter said it was not to be expected that the teaching of the rudiments of geometry and perspective and elementary freehand drawing to many thousands of children would turn them at once into artists, or even give them any artistic instinct; but it would act as other elementary education acted—it would give a chance to natures which might otherwise remain undeveloped. But in itself the learning of geometry and freehand drawing could no more be called studying art than learning the alphabet could be said to be studying literature. Both were the necessary preliminary stages for a higher culture. Speaking of the means for promoting art education, he alluded to the art schools, and added that a constant effort was being made so to arrange the Government payments to the masters that there should be the necessary inducement to lead their pupils from one stage to another, a matter which would be easy enough if the supplies were unlimited, but which was difficult when they had to be kept within bounds. It was in this way, however, that he hoped the influence of the vast machinery of the Art Department might be felt—through the chances given to children to turn their attention to art if their inclinations were in that direction; through the inducements to study offered by art classes and schools; and through the final inducements to enter into training at South Kensington as art masters, that in examinations they might diffuse their knowledge through the city. The system had its disadvantages, no doubt. According to the direction which the instruction took, its influence would be equally strong for good or for evil, and herein lay an immense responsibility. But there was another great piece of machinery which had no such risks, and by which the truest principles of taste might be diffused among all classes—through the institution and formation of museums. Here again, however, they must not deceive themselves as to the influence which they would exercise. Without previous culture, no one was likely to appreciate a work of high art; the richness and splendour of workmanship and material in a cup by Cellini would please an uneducated eye, but it needed a long apprenticeship in general and special study for the appreciation of the exquisite taste and fancy which had guided the artist. Mr. John Morley, in a speech on education lately delivered, had asked why the collection of Castellani jewels at the British Museum should not be sent to Birmingham to improve the taste of the jewellers. If it were in the least possible that the goldsmiths and jewellers would take to heart the lesson which those wonderful specimens of Greek art taught them—a lesson which he (Mr. Poynter) had tried to indicate in this paper,—namely, that exquisite workmanship was the essence of fine-art manufacture, and in jewelry, above all things, then no risk, perhaps, would be too great to run in the cause; but it was far too probable that the only result would a "cribbing" of a few of the forms to produce a novelty, and the executing them in a coarse and barbarous manner. But museums had another important function—the preservation of relics of antiquity, which, if lost, neither money nor labour could restore. The collection and preservation of objects of art could not but have a refining and educating effect on those whose tastes were sufficiently raised by cultivation to appreciate them; and to supply local museums and art schools with the best specimens available was one of the most important duties of the South Kensington Museum. He could see three ways in which the influence of art might be brought to bear on our social system,—through the return, if only partial, to the bygone excellence of workmanship; through the spread of education; and by affording art students, throughout the kingdom, the opportunity of seeing fine works of different periods and styles. We should not deceive ourselves, however, as to the extent to which public taste might be influenced through these means, for there was an immense mass of the people of all classes who were wholly indifferent as to whether their surroundings were ugly or beautiful, and who thought only of their personal comfort or luxury. Those who were really interested in art formed but a very small portion of the whole mass of the nation, who were for the most part animated by other interests, indifferent to, and in many cases opposed to and irreconcileable with the interests of art. It was encouraging to remember, however, that at no part of the world's history, except during the cultivation of Greek art, had a nation been wholly artistic. In Italy, even at the best time, the mass of the people were probably indifferent, and the love of art was confined to artists, artificers, and the cultivated class. Although he did not see the possibility, under existing conditions, of so complete a diffusion of taste for art among us as would make us an artistic race, yet there was no reason why it should not be the property of the cultivated class, and of all art workmen, as it was in Italy; and it was to be remembered that the spirit of art would of itself assist in the increase of this cultivated class, and in the spread of the cultivation by which it lived. "I have not," said Mr. Poynter, in conclusion, "entered into the question of painting, which is, as far as the imaginative powers are concerned, of course the highest and most important branch of the art; in the first place, because I have so often lectured on the subject, and in the second, because there is a fear, through the high marketable value of pictures, that all the best artistic talent of the country is rushing in that direction, and I was anxious to give prominence to the social and economic side of the subject. There is, however, no reason why this great art should not take here as high a place as in any country,—I might almost say as in any time. The English, if they have not the marvellous technical facility of the French, are far superior in poetic feeling and imagination; and the independence of thought which has in some respects barred the way to the formation of a definite school in England is combined in our national character with much readiness to learn from other countries. If we can only acquire sufficient love for art to enable us to resist the enervating influence of an indiscriminating public and a too ready market, the art of painting may receive amongst us its highest development."

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Mr. J. F. Boys urged that working men's clubs should be kept entirely as clubs or places for the purpose of refreshment and amusement, and their libraries should have as much light literature as possible. Something should also be done towards providing amusement for the working women, for whom little or nothing had been done. Such a work was an admirable one for a number of ladies to engage in.

After some remarks from Sir W. Stirling in support of innocent recreation for the people,

The Rev. R. H. Lundie observed that one of the difficulties mentioned in Mr. Fuller's paper had been to a great extent met in Liverpool by the establishment of cocoa-rooms for the working classes, no fewer than fourteen of these rooms having been opened within the last twelve months.

EXHIBITION OF SANITARY AND DOMESTIC APPLIANCES, LIVERPOOL.

During the past week large numbers of people have visited the exhibition in the Drill-hall, St. Anne-street, which was opened on Wednesday in last week, in connexion with the Social Science Congress, and on Saturday evening the place was so crowded that locomotion from stand to stand was a matter of no little difficulty. The size of the building was far from sufficient for the number and varied character of the exhibits, and it is much to be regretted that the endeavour to obtain Victoria Hall, which was specially erected for the religious services of Messrs. Moody & Sankey, proved ineffectual, as that commodious building would not only have proved to be most admirably adapted for the purpose, so far as accommodation was concerned, but it would also have been much more central for visitors and a greater advantage to the exhibitors. As it is, many of the exhibits could not be properly inspected on account of being too much crowded, and several exhibitors were obliged to keep back many articles for want of room on their stalls to show them. Mr. R. T. Chaplin, of London, had the management of the exhibition; but it was mainly due, as before, to the exertions of Mr. James Robinson. The ceremony of opening the exhibition took place at eleven o'clock, and was very simple.

Mr. Godwin, being called to the chair, said the exhibition was not exactly a portion of the Social Science Association's programme, but it was an offshoot, and he was sure that all who had attended previous exhibitions strongly desired that it should be made part of the actual business of the Association. Whatever might be said of wild theories mooted elsewhere, at that exhibition they had only hard facts to deal with, which could be well examined and at once disposed of. After stating that the number of exhibitors was upwards of 100, he proceeded to mention some of the most important sanitary appliances to be found in the exhibition. Mr. Hogg's models for ventilation well deserved examination. Mr. Cole's apparatus for lowering and raising windows would be found very useful where the sashes were heavy or difficult of access. Messrs. John Powell & Co. had sent some capital samples of building materials and painted tiling; and Messrs. Doulton a charming collection of the artistic ware they were producing. William Green's Climax Coal Saver had obtained approval from a public committee. Mr. Henry Stott's plans for the ventilation of ships appeared to be excellent; but the application of his system to the ventilation of sewers seemed not to be without objections. Messrs. Leoni & Co. showed that cooking could be done by gas with even a saving of money. Mr. Goodall's exhibit of concrete flooring, and Mr. Northcroft's Fire-resisting Compound Arched Floors and Roofs, were described and commented on. Alluding to the importance of having dry houses, he referred to the exhibits of the Silicate Paint Company, Seel-street, Liverpool, and said when they recollected the enormous amount of injury that lead-paint did every year, and the number of persons who were damaged most seriously by it, and the difficulty of keeping damp out of houses, and when they found that this company claimed to meet these two points, their preparations were of importance. Another useful appliance was Harrison & Wood's domestic flushing plug, which was a very small article, but from which, if largely used throughout Liverpool, considerable advantage would result. The Ladies' Sanitary Association had a stall, and their work ought to come under the notice of the ladies of Liverpool. They were quietly doing a good deal of work, and might do more if they were aided by committees established in such large towns as Liverpool and Manchester. After mentioning other of the inven-

tions exhibited, he concluded by impressing the importance of giving increased attention to sanitary matters generally. Thousands of people had died in Liverpool simply because of the want of good sanitary arrangements. Liverpool possessed able sanitary officers and many good arrangements, still people died to an alarming extent who ought to live, and would live, under better sanitary arrangements.

Dr. Yeats next spoke, and said, the object which the committee had in view had been to make the exhibition as representative as possible of each class, and as far as could be to show to what point England had arrived in affording to every one, rich and poor, the best means of meeting his domestic and his social requirements.

Mr. Baldwin Latham said he had attended the whole of the exhibitions which had been held in connexion with the Social Science Congress, and he could bear testimony to the good from a sanitary point of view which such exhibitions had had upon those who had frequented them. New appliances of a sanitary character had often been brought out at exhibitions of this kind, to which the public needed to have their attention drawn, in order that they might be adopted for the benefit of the public health. The present exhibition formed no exception to the rule, for there were in it numerous appliances of immense importance in a sanitary point of view. After dwelling at some length, and very usefully, upon the importance of having pure air and pure water, he remarked that it could not be said with regard to Liverpool that its water-supply was of the most desirable quality when they took into consideration the fact that a large per-centage of the supply was procured from wells sunk in the red sandstone, and that the sewers which carried away fœcal matter were hewn out of the solid rock, and constructed with the addition of an arch only. He hoped those who visited the exhibition would pay particular attention to all the appliances, because in each one of them they would find something worthy of note, and perhaps something which might be of importance to their own health and that of their families.

The exhibition was then declared open, and the chairman said he had only to commend it to the special attention of the inhabitants of Liverpool, and to express an earnest hope that it would be productive of good.

THE LIVERPOOL ART CLUB.

Social Science, which, in different parts of England, for the last twenty years, has culled flowers of many and divers species,—otherwise destined perhaps to blush unseen,—has just brought into unusual notice the existence of a society of gentlemen whose artistic doings, from what we have read and experienced, must be added to the catalogue of those good deeds which may yet brighten the naughty aspect of a materialistic world. The objects of this club are to found and perpetuate in Liverpool one general centre of communication and reunion, whither local art-collectors and art-lovers may be attracted under one common hospitable roof; while they, moreover, may in like manner be brought into closer and more direct connexion, not only with local, but also with metropolitan artists. This club also aids in the promotion of loan collections and in the delivery of lectures upon art. The Liverpool Art-Club, in its first by-law, describes itself as formed for the purpose of bringing together those interested in artistic subjects, and the furtherance of anything that may promote the interests or diffuse a knowledge of art; and we learn that an attempt is even now being made to found a similar club in another large city in the north.

The presence in Liverpool of a few Royal Academicians, with a sprinkling of other Londoners of artistic and antiquarian tastes or notoriety, has afforded the Art-Club another occasion for exercising its hospitality to strangers; and, last Saturday evening, it proved, in the most practical manner, that not the meanest of the qualities developed at a Social Science Congress is the science of sociality. The dinner, which was a complete success, was held at the Club-house in the room at present devoted to a loan exhibition of illuminated manuscripts. Covers were laid for seventy-nine, of whom thirty were guests; and among the latter, besides the Mayor, were the Marquis of Huntly, Sir Robert Collier, and four presidents of sections. Of these last, one, Mr. Herschell, Q.C., M.P., had denounced, in his opening address, Coroners' Courts, and the uncodified state of English law; and another, Mr. Poynter, R.A., had, on that same morning, inveighed against an age of iron and engineers in general, and the landing-stages and bridges of Liverpool in particular. It was, therefore, with no small amusement that hosts and guests heard, in the course of the evening, the good-humoured rap on the knuckles received by both these gentlemen from the wit of one practised debater, and an awfully practical question put by another speaker. Mr. Herschell was pointedly told by Sir Robert Collier that "by no laws which you can enact, by no institutions which you can make, can you turn the savage into a civilised being. You require," added Sir Robert, "civilisation before good laws or good institutions are possible;" and the result of a wicked whisper induced Mr. Gaskell, the president, to say that he had taken the liberty to ask Mr. Poynter in what way horrible-looking works of utility could be made consistent with artistic rules; to which the Royal Academician had replied that it was scarcely his province to do more than point out the excessive ugliness of these things, and that it was for the engineers to devise some means by which utility and beauty would be combined. Nor did the Marquis of Huntly, who unintentionally delivered a little stab at the pugnacious character of art criticism, fail to raise a laugh by a story well told. He, it appears, is a *bric-à-brac* hunter; and once, killing time at a town in Northamptonshire, he found himself in the shop of "a silversmith with three balls over the door." Having asked the price of everything in the shop-window, and finding nothing of interest, he inquired if there were any great collectors in the town. The silversmith's wife said there was Mr. Sadler. "Pray," continued the Marquis, "what does Mr. Sadler collect?" "Oh!" replied the woman, "poor-rates, sir!"

Mr. Philip Rathbone, to whose earnestness the addition of an art-section to this year's Congress is due, spoke like a man of the world, as well as an art-lover. Referring to the repeated slur cast upon Social Science Congresses by the press, he said, very happily, that if such congresses did not advance science very much, they *spread* science; and concluded, with a touch of amiable satire, in describing Sir Robert Collier as "one who had shown that the love of art could flourish more strongly among politicians than among any other class of amateurs, except perhaps medical men." Nor did he fail to strike home with a hard hit—even in spite of the presence of the mayor—regarding the baneful influence upon the art of the country and the taste of the people exercised by some of our national and municipal institutions.

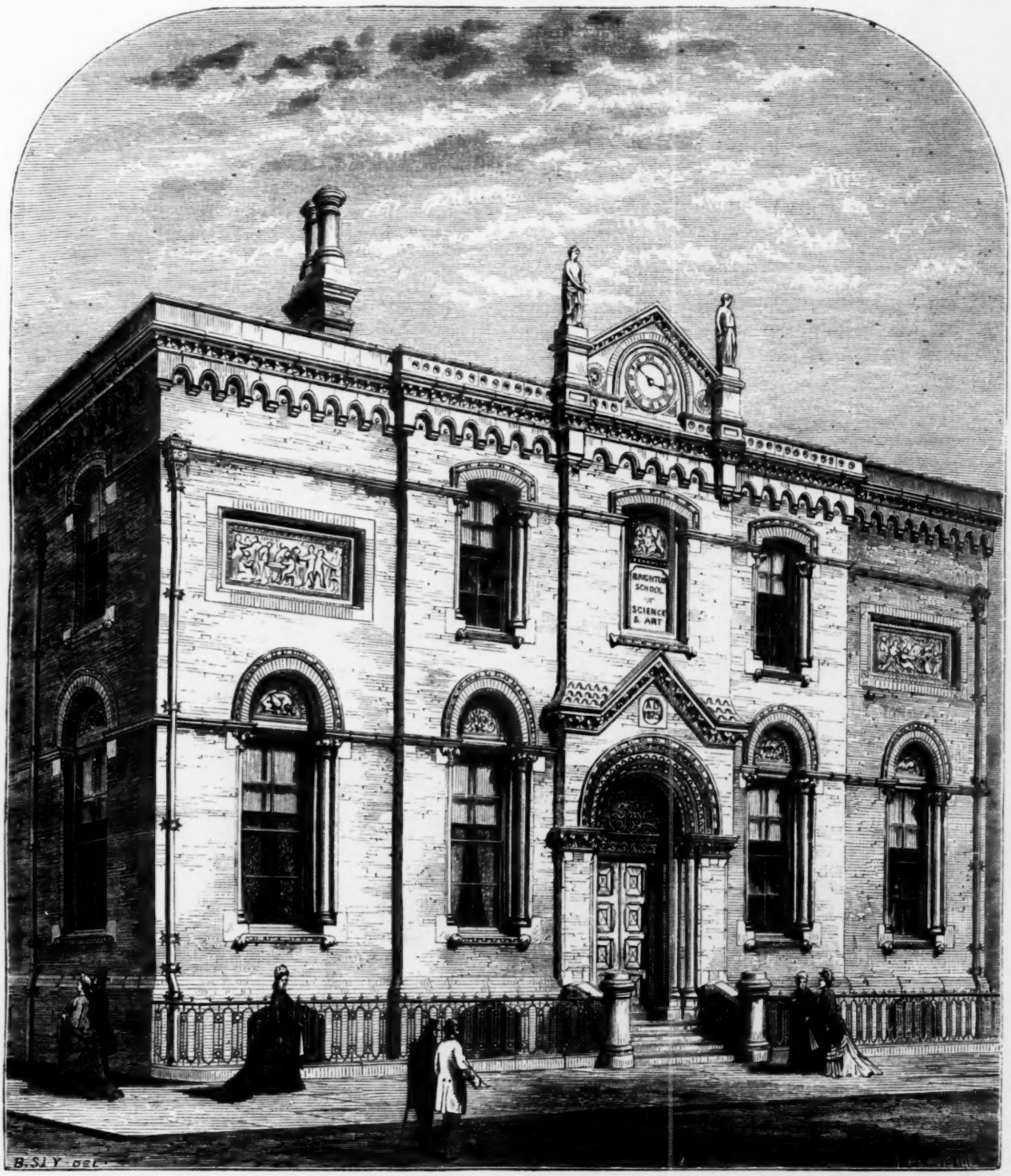
But the best speech of the evening was that delivered by Mr. Leighton, R.A., and we cannot but think that the evident facility with which he expresses himself,—with equal force and refinement,—will contribute, when the time comes, to lead to his elevation to a post which many of the public, and some of his colleagues, consider him destined to fill. Mr. Leighton's words (forming only a portion of his speech), if we remember rightly, were almost as follows:—"There can be no doubt that a place of meeting, where men, smitten with that absorbing thing—a love for art—may come together and discuss, in a friendly manner, their favourite topic, compare their treasured possessions, increase their knowledge, exchange their ideas, and by contact of intelligence perhaps evolve some new spark of thought—such an institution cannot fail to be useful as well as delightful, anywhere and everywhere. At the same time, I venture to think that the uses of an art-club are more especially obvious in great towns such as Liverpool and Manchester, which are huge centres of manufacturing and commercial activity, remote from the metropolis, where the current of daily life sets itself strongly and effectually in a direction entirely opposed and inimical to art. Although Englishmen have shown in political life that they cannot bear centralisation, in their artistic aims we see a different spectacle. We see heaped up, in profuse abundance, treasures of art in the metropolis; and, with the exception of the university towns of Oxford and Cambridge, and the capital towns of Edinburgh and Dublin, we see an almost entire baldness with regard to these things all over the country. How great is this contrast! See what immense resources are open to the lover of art in London. In the British Museum alone the student sees before him an art-epitome in all its lovely forms, which the world cannot rival. The precious spoils of the Parthenon, the light and pomp of scientific life in the great Periclean age, are arrayed before his eyes in the Panathenaic frieze; and, there, in the serene presence of gods and heroes, he may almost for a moment forget the din and squalor all around him. In the National Gallery we can follow the growth and development of the art of painting from its birth, in the city of Florence, to its culmination in Rome and Venice, and its later triumphs—its Indian summer—in Holland, Spain, and Flanders. . . . . On the other hand, when we turn, say to Liverpool, we find these resources, not wholly wanting, but, at the same time, in an embryonic condition. A great deal, however, has already been done . . . . . but a great deal remains to be done, in order to propagate the knowledge of art, to raise its tone, and to spread its refining influences among the great commercial populations." Here it is that the uses of such a club as that at Liverpool come into view; and we agree with Mr. Leighton that the worthy and noble objects which the Art-Club proposes to itself, beyond mere social and convivial enjoyment, will spread a beneficial and lasting influence upon the community at large in the wealthy and yet pauper-ridden town of Liverpool.

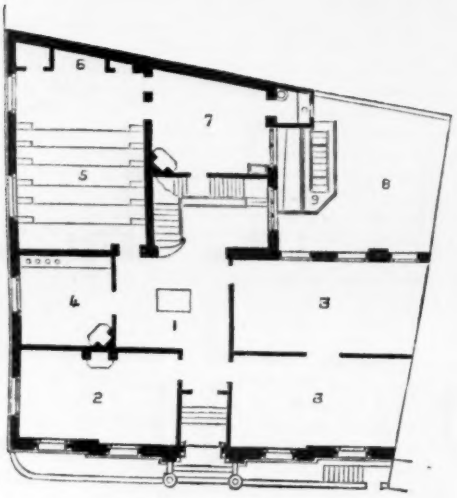
BRIGHTON SCHOOL OF ART AND SCIENCE.

On a convenient site in the Grand Parade, at the foot of Carlton-hill, a school of art and science is being erected for Brighton. We give a view of the façade and plans of the principal stories of the building. The first stone was laid by Sir Henry Cole in June last. Of the designs sent in—the competition was an open one—that of Mr. J. G. Gibbins, of Brighton, was selected by the committee. Before being finally passed, however, the plans and elevations were carefully gone through by the committee and Mr. Fisher, and they were subsequently submitted to the Science and Art Department, South Kensington, for approval. The building in style will be a modern adaptation of the Romanesque, and it will cover an area of 68 ft. by 71 ft. 6 in. The façade will be handsome with stone-work and figures in terra-cotta, suggestive of the character of the institution. On each side of the main entrance on the Grand Parade will be columns of red polished granite, while the window columns will be of red Mansfield stone, and the jambs of yellow Malm brick. The front wall of each wing will have a sculptured medallion, with emblematical figures let into it, and in the centre of the façade will be a clock with a statuette on either side. The cornices, balustrading, and coping, will be of Bath stone. The accommodation for the art classes will consist of an elementary-room, 38 ft. by 32 ft. 6 in., lighted from the top, accommodating a class of about eighty students; painting and antique rooms, together about 50 ft. by 22 ft., lighted from the north; a modelling-room, library, master's room, &c. For Science there will be two large class-rooms, professor's room, and chemical liboratory; and, for both, a lecture-room, occasional class-rooms, secretary's office, cloak-rooms and lavatories, and residence for attendant.

Mr. G. R. Lockyer, of King-street, North-street, Brighton, is the builder; and the immediate superintendent of the operations is Mr. Parker Anscombe, his manager.

Interesting Discovery in Rome.—An interesting discovery has just been made at Rome, in the Church of St. Peter ad Vincula. Workmen have been engaged for some time in the construction of a "confession," near the high altar. In the course of the excavations, in a line between the altar and the apse, they came upon a marble sarcophagus more than two mètres in length. On the sides are sculptured five groups in the style, apparently, of the fourth or fifth century. The first represents the Redeemer raising Lazarus, with the sister of the latter on her knees at the tomb; the second, the multiplication of the loaves and fishes; the third, Jesus and the Samaritan woman at the well; the fourth, our Lord foretelling to Peter his triple denial; and the fifth, Christ giving the keys to Peter. The interior is divided into seven compartments, and this circumstance has given rise to the belief that the sarcophagus found contains the bodies of the seven Maccabees, which, according to Church history and tradition, rest in this church, built by Eudoxia.





GROUND PLAN

FIRST FLOOR PLAN

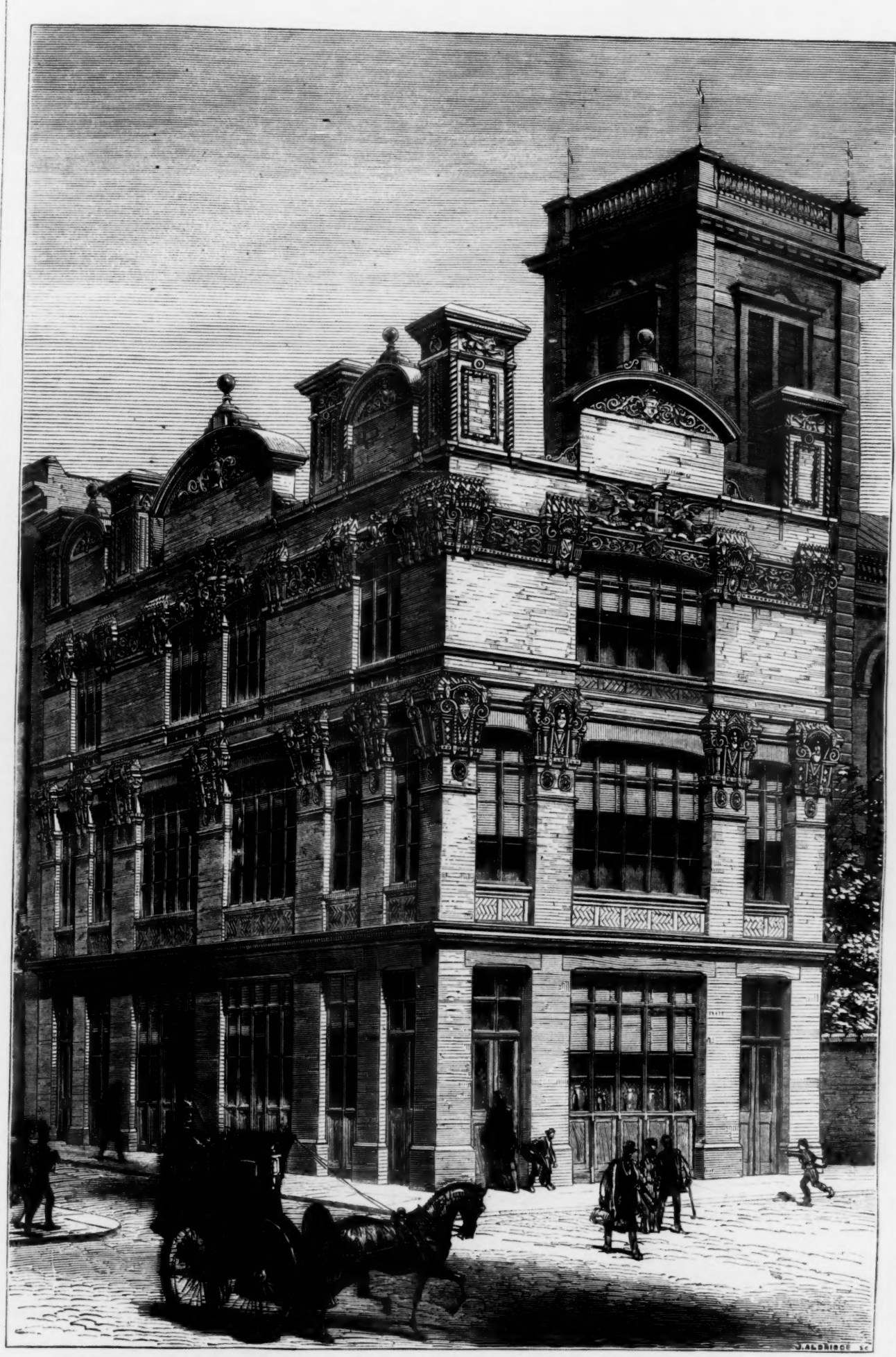
1. Entrance-hall.
2. Secretary's and Board room, 28 ft. by 16 ft.
3. Science class-rooms, 33 ft. by 16 ft. each.
4. Men's lavatory and paste-room.
5. Lecture-room, 31 ft. by 22 ft.
6. Black board.
7. Professor's room, 20 ft. by 16 ft.
8. Yard.
9. Roof of men's offices.
10. Elementary art room, 38 ft. by 32 ft. 6 in.
11. Closet.
12. Library, 16 ft. by 14 ft.
13. Master's room, 16 ft. by 14 ft.
14. Painting-room, 22 ft. by 16 ft.
15. Antique-room, 33 ft. by 22 ft.
16. Modelling-room, 20 ft. by 16 ft.
17. Lobby.
18. Landing.
19. Stairs to laboratory.

The ladies' room forms a mezzanine room above professor's room.

The basement floor contains caretakers' rooms, occasional class-rooms, stores, coals, &c.

The laboratory is over the modelling-room and grand staircase.

BRIGHTON SCHOOL OF ART AND SCIENCE.—Mr. J. G. Gibbins, Architect.



"BAYNARD CASTLE," QUEEN VICTORIA STREET, LONDON.—Designed by Major Wieland.

"BAYNARD CASTLE," QUEEN VICTORIA STREET.

This building, of which we give an illustration in our present number, is composed mainly of red brick, the highly ornate decorations being moulded in red terra cotta. The premises, which are situate in Queen Victoria-street, at the corner of St. Andrew's-hill, have been designed and built by Major J. F. Wieland, who owns several other buildings in the same street, notably Albert-buildings, Imperial-buildings, Poultry-chambers, Bridge-chambers, and, lastly, the Oriental Restaurant over Blackfriars Station. In the present instance of the Baynard Castle, he has chosen a variety of the Tudor style of architecture, because the present building covers a portion of the site of the historic Baynard Castle, which was for some time the residence of King Richard III. while Duke of Gloucester, and afterwards while king. It was from his residence, Baynard Castle, that Richard Duke of Gloucester proceeded to Westminster to demand the throne of England, and thence also did he proceed on the following day to St. Paul's Cathedral, where he was received by the Archbishop and clergy as the King of England. Baynard Castle is rich in history, for it was here that Edward was named king, and where Richard usurped the title; where Henry VII. frequently resided, and on one occasion received and lodged his storm-tossed guest, Philip of Austria. In Baynard Castle, too, in still earlier times, lived Maud the Fair, who was killed with a poisoned egg because she refused the hand of King John. Nice times those!

In the excavations for the present building, traces were found, it is stated, of a secret passage, supposed to be that which ran from Baynard Castle to Henry II.'s Fair Rosamond bower on Paul's-hill Wharf. One of the latest historic facts connected with Baynard Castle is the occasion of Queen Elizabeth supping there with the Earl of Pembroke. In the days we speak of, the river washed the walls of the castle, but now the City Flour-mills stand some hundreds of feet in front of it into the bed of the Thames. We are glad, however, that the name of the old castle (which is also the name of the City ward in which it is situated) should be perpetuated, albeit that the name now only attaches to a tavern.

The terra-cotta decorations are chiefly heraldic, giving in their various details the arms of England, and the crests and supporters of various sovereigns who lived at Baynard Castle, together with the City arms and the arms of the ward. There is also a representation in terra cotta in bas-relief on the south front of the building of the original Baynard Castle, introduced since our engraving was completed.

The design has been carefully carried out by clever artists under the personal direction of Major Wieland.

AS TO THE INFLUENCE OF ACADEMIES UPON THE ART OF A NATION.

This question, discussed at the Liverpool Congress, is a very useful one. But, as it stands, it tacitly implies that academies, art-academies, as they are now constituted, were always a part of the art organisations of the world. This, however, was by no means the case. Academies of art are of comparately recent origin. Whatever associations of artists may have existed in the two great art epochs, the Grecian and the Italian, the art of those epochs did not in the least degree owe its encouragement and progress to these guilds, but to much more potent influences outside and independent of them, viz., to the leading of the people, the culture of the people, and the will of the people.

The modern academy has risen upon the ruins of ancient art developments, more immediately upon that which was fostered by the Papal power. With the modern academy came in the institution of national galleries of pictures and museums of antiquities; in short, that complex system of institutions for art-teaching by which this present age vainly expects to place art on the same elevated pedestal as that of Greece and Italy; to effect, in fact, by an inverse process, by the force of example, what was patiently earned step by step through the centuries by hard thinking and patient labour. When the Church of Rome ceased to be the great patron of painters, and the walls of the churches, the palaces, and other public edifices were gradually closed against the genius of the painter, the time for picture exhibitions and academies came. The era of cabinet pictures set in.

The Academy of the Fine Arts was the product of these changed times. The world had commenced to educate itself and to think for itself. And whilst it was intent upon solving some very knotty questions, the feeling for art almost expired. Academies came to the rescue, and prevented its utter extinction.

It was under similar conditions to these,—in a country where the masses were uncultivated,—in a State where the taste of the people had no leading, in art, from the educated class, that the Royal Academy of London was founded, and faithfully it fed the lamp, and kept it burning till better times. For this devoted service we are deeply indebted to it. The Royal Academy deserves our gratitude. For had it not been for those associated English painters, sculptors, and architects, we should, in all probability, have had no art-sustaining power whatever,—no schools, no art-teaching through the greater part of a century. But the influence of such an institution upon the arts of a country, either for good or ill, is, under such adverse external conditions, too apt to be exaggerated. But now that there is somewhat more light diffused, on art matters, outside the Academy, the public is somewhat dazed by this access of effulgence, and has somehow or other got possessed with the notion that the Academy ought to be answerable for what it never can be answerable for, viz., the taste of the people. An academy in a free country, like all other institutions amongst a free people, will be what the people will to make it. The public in its intellectual progress has begun to rail at the Royal Academy without having itself as yet sufficiently advanced in its art-knowledge to understand that it is all the while railing at and condemning itself. For, in effect if not in words, it reproaches the Academy for not being something very different to what it has itself made it. If the Royal Academy had been endowed by the State specially to paint grand historical works, we might then have consistently blamed it for departing from the strict terms of its charter. But how can the public, with the least show of justice, complain if the academicians do not, with one accord, pursue the highest aims in painting, when the public itself is all the while demanding of them a very different kind of art? You are the great purchasers, you the great picture-buying public by whom the artists thrive. Artists paint their pictures to your orders, to your tastes. It is really you, and not the Royal Academy, who exercise the greatest influence over the arts of the country. It is really you who determine, though you may perhaps not be aware of it, the path which the rising art-talent shall pursue, but who yet have the effrontery to turn upon and blame the Academy and the art-schools of the country for only too well complying with the strict letter of your demands. An academy would possess a superhuman obstinacy if, in a country like this, it could for any length of time run counter to, and defy, public opinion and taste. When there happens to be anything wrong about a house, it is no uncommon thing for the master to turn upon and blame his servants. He seldom entertains the suspicion that he himself may be to blame. Can that public which has modified the several estates of the realm of this great country seriously turn upon a special institution like the Royal Academy, and accuse it of being the cause of all the national art-short-comings, and of defying its sovereign will and pleasure? To me, the proceeding appears to be utterly childish, and unworthy of a great people.

And what did the nation do when the cry was first raised against that institution,—against that institution but for which we should have had no art at all? Why, instead of rewarding it for its devotion, and increasing its powers, you established a new art-department to take the art-teaching of the country out of its hands.

How was it, I would inquire, that the nation was able to effect the great political reforms of the last half-century? Was it not by that educational progression which gave the people a clearer perception of their rights, and which enabled them to discern where error and corruption lurked, and to ask distinctly for the necessary reforms? A similar movement, arising from a similar cause, if I rightly interpret the addition of the art-section to the present Congress, is beginning to stir the country with respect to its art policy, and I feel convinced that it will be followed by equally important and beneficial reforms in regard to art as that which preceded it was in favour of better representation and good government.

Let us turn for a moment to survey the conditions on which a grand national art development depends. 1. It depends upon the leading of the people. 2. It depends upon the education, the culture of the people. 3. It depends upon the unity of thought and purpose of a people. 4. It depends upon the stability of a State.

1. Art depends upon the leading of a people, because the time must be yet far distant when the great mass of the population of this kingdom can possibly attain to that highest culture which is reached by but few. Meanwhile, the leading of the masses in art, as in other matters, devolves upon that educated few. It is the leaders of the people who should direct the taste of the many, who should open up great opportunities for the exercise of artistic talent, and demonstrate to the people that art in its highest exercise becomes monumental, by embodying, in more or less durable materials, the thoughts and aspirations of a people,—who should convince the people that unless this monumental art be encouraged, we shall, as a nation, have no lasting record of our intellectual status.

2. Art depends upon the education of a people, because it is the more finely organised sensibility which is developed by culture which makes men susceptible to the refinements of art. Without this educational preparation it will be in vain to expect any improvement in taste.

3. Art depends upon the unity of thought and purpose of a nation, because this alone leads to unity of style in architecture, painting, and sculpture, and impresses the arts of a country with a distinctive character.

4. And art depends upon the stability of a State, because political and social stability enables the fine arts to be persistent in their labours, and thus to perfect both their theoretical and practical knowledge.

But what would be the condition of the artist, and of art, in a State wherein all these necessary conditions for the successful prosecution of artistic studies were wanting, as they were in England, if we except that of national stability, till very recent times? For what leading had the people in art, half a century since, from the educated class? What field has the artist had in this country for the exercise of his talents on a "grand scale" on monumental painting compared with the painters of Greece and Italy? Where was the unity of thought and purpose which would have made our cities rise, not as they have done, a chaotic patchwork of styles, but bearing upon them a common impress, exhibiting an architectural and national magnificence? Yet this, I say, was the very confusion of things which existed in England at the time the Royal Academy was founded. The Academy was quite powerless to change these conditions, but the walls of the Academy nevertheless served as a fortress in which the few English artists fought bravely through the adverse time, and the Royal Academy will, I will venture to say, send you recruits when you have found new fields for artistic conquest, and wider campaigning ground than that of the walls of the Academy itself.

I myself very much doubt whether an Academy of Fine Arts, constituted as modern academies are, could at any time show the slightest signs of vitality without being in some degree representative institutions. They may wear the appearance of being exclusive and absolute, when the art darkness of a people is profound, and they represent the taste but of a small class. The Royal Academy is now the representative of a much wider constituency than of old time, and none, I feel persuaded, know better than the Academicians themselves that the Academy's occupation would be gone if it ceased, as a body, to modify its views, and to respond to the taste of the people. I have myself noticed how faithfully the walls of the Academy have reflected any popular bias to this or that temporary art fashion.

I have, therefore, come to the conclusion that an academy is principally useful as serving as a stronghold in adverse art times, but that it has little or no power to mould the taste of a people,—it is itself influenced and moulded by public opinion, public taste.

Academies, as I have already stated, are modern institutions. In the two great art epochs, in those two epochs which produced the finest examples of art, academies, under the form in which we now know them, had no existence. Our modern art policy is altogether different from that which was so pre-eminently successful. There was no necessity for Academy

exhibitions when the walls of every important building were in themselves a grand exhibition. There was less need for the painting of cabinet pictures when the public took a lively interest in the grand themes of religion and history. There was very little occasion for schools of art when the system of scholarship prevailed, and every newly-erected edifice was a school of the very best kind,—a school in which the student was not left at the very threshold of art to shift for himself, but which conducted him far beyond, and furnished him with that experience which made him either a painter, a sculptor, or an ornamentist.

Depend upon it, if this country is to make a great mark in the fine arts, we must change our art policy. If we do that in the direction in which Greece and Italy point, and keep our minds steadily fixed on the great ends to be achieved, we may save the breath of clamour against academies, against any established art institution whatever. Liverpool has the inauguration of this new art-policy in her own hands, and to her fostering care I commend it.

But whatever changes may take place in the art-policy of this country, there is one function which an Academy of the Fine Arts, like that of the Royal Academy of London, ought to be the best able to perform. I mean that of dispensing honours, and of honours I trust it will remain the fountain-head as long as artists retain the amiable weakness of desiring them for their good work. W. Cave Thomas.

THE INTERIOR OF CHESTER CATHEDRAL.

Sir,—Having, since writing my former remarks thereon, had the pleasure of seeing the above-named place, I am impressed by one or two features in its treatment which, I think, in the interest of church arrangement and decoration generally, might be profitably brought under the notice of the profession.

The opening of the south transept into the church, and the clearing of the central space, from which all the vistas radiate, is a great improvement, and fully discloses the beauty and interest of a very impressive interior, and increases or restores the unity of the cathedral,—a quality very desirable in all such structures, and one in which our cathedrals are somewhat inferior to the French, which generally exhibit one vast apartment that strikes with an effect of noble simplicity and majesty, though ours have the greatest apparent length in proportion to their actual dimensions. One vista, I would just remark, the one upwards, has not been improved by the great chandelier hung up in the tower.

On the north side of this central space, two couples of polished Classic marble shafts, brought, I was told, from Corinth, which enter into the composition of the unique organ-screen, make a pleasing variation; and would have been still more pleasing and harmonious had their capitals, and the superincumbent features in the screen, been of the same precious material.

On entering the choir, though fully conscious of a due solemnity arising from grandeur and purity of form, which must owe much to the removal of whitewashes and excrescences, I could not help feeling a want of keeping between the bare sandstone of the piers and arches, and the richness everywhere else displayed,—in floor, storied pulpit, carved throne and stalls, and above all in the altar and reredos, in the construction of which has been wisely acknowledged, by the use of inlayings to which sacred associations attach, a principle which is violated in restorations generally. Nothing can be finer in form than those piers and arches, and the Early English triforium above them. But equally apparent with their beauty of form is their need of colour.

The newly-scraped stonework has, I am well aware, been left in this state in conformity with the general usage. But I am quite sure it is a violation of true principle and a grievous mistake so to leave it; and I should say the same were I assured it was the invariable practice of the Mediæval artists to do so. Without painting and embellishment, such an interior cannot have half the effect it is capable of, or look truly finished.

The only worthy interior finish, I conceive, of a great monumental structure, is the polished surface of a marble lining, which being once applied, finishes it for ever. As this is inapplicable here, painting and gilding, which could not be more worthily employed, should be brought to the rescue, and save the house of God, at least the most sacred division of it—the choir and its aisles,—from presenting a meanness of surface which we could not tolerate in our sitting-rooms, and which prompts the feeling expressed by David when he said, "Lo, I dwell in a house of cedar, but the ark of the covenant of the Lord remaineth under curtains." Fancy the improvement that would be produced in the place if piers, arches, walls, and triforium arcade were suddenly changed by wand of magician from dark-red coarse-grained sandstone, to dark-red polished granite. How greatly more palatial and monumental would be its air and character! But some three or four coats of oil-paint, highly varnished, would, without imitating any superior material, realise an almost equal effect, and, at the same time, be preservative of the stone from injury by damp. Gilding might be added so as to emphasise the forms if needful, while horizontal gilded and decorated bands might be so disposed as to increase the apparent height of the piers, and of the interior.

The noble and meritorious composition of St. Paul's Cathedral has inspired the universal wish to supply the great desideratum therein of good detail and decoration, and render its finish worthy of the general design. But the buildings in question are quite as worthy of receiving all possible internal adornment as the great work of Wren. In them the highest efforts of art-skill have been successfully put forth to produce excellence,—excellence which, whenever duly appreciated, must inspire the wish to carry out the general design to its utmost limits in regard to detail. Nothing, we may be assured, judiciously applied in the way of embellishment can be lost in those interiors. The distribution of light in them, more particularly by the great east and west windows, is so admirably adapted to enhance the result of majestic proportions by broad and powerful effects of *chiaroscuro*, such as delight us in pictures, and give the utmost beauty to any detail, moulding, or element of decoration, that it seems high treason against the republic of art not to give them the highest finish of which they are susceptible.

Some of the loftiest elements of adornment employed at St. Peter's Church at Rome, and the most sumptuous churches, Classic or Gothic, of the South of Europe, are equally applicable to these,—the finest and most venerable monuments we possess; and are, indeed, necessary to render them worthy of their exteriors, on which, in almost every instance, the beautifying finger of nature has been busy, till every stone has become literally a picture, and the whole glows with the interest and beauty of a landscape painting. But I return to the particular example under consideration, the omission of painting in which is, I humbly think, a mistake. I should not here point it out, were it not one which could still be corrected.

Colour and decoration on the arcades would render the extremely minute and rich mosaic floor more in keeping with its surroundings. For elaborate floors, for which there seems a passion among us, at present, we have no high precedent, or authority in reason. The tessolated, or rich mosaic pavements of the Classic ancients, we may be well assured, were never used but in connexion with walls and ceilings decorated in the highest style of art; or in accordance with the principle that, of the planes which bound an apartment, the plane of the floor, which is to be trampled on, is the most inferior in its claims to ornamentation. There are some inlaid figures in this floor, which I need scarcely say, are too sacred to be walked upon, even were the Oriental custom in vogue of taking off the shoes on entering our holy places.

The old carvings of the stalls have, very properly, been thoroughly cleaned. But in the operation of cleaning, which was by boiling, they have lost something of their look of age, which had been better retained, the more so as all looks new elsewhere. A general look of newness in the interior was of course inevitable. But, in so old an edifice, the eye instinctively looks for some sign of age; and these old carvings would have satisfied it.

Samuel Huggins.

Trade Marks.—Negotiations are in progress between the Governments of Germany and Brazil for the conclusion of a convention for the mutual protection of trade marks.

A WORD FOR THE BUILDERS' BENEVOLENT INSTITUTION.

The annual dinner in aid of the funds of this Institution will be held on the 2nd of November, Mr. Charles B. Waller in the chair. The invested property now amounts to something over 19,000*l.*, and the committee hope, with the assistance and through the liberality of the builders of the metropolis and their friends, to raise this fund to 20,000*l.* before the close of the year. When this end is attained, as surely it may easily be, they will feel themselves justified in distributing the whole of the annual income in pensions, without further adding to the invested property. We trust some of our readers will join in the present effort to increase the sphere of usefulness of the association.

From want of funds many deserving cases cannot be entertained. There are always more candidates than there are pensions available, and it frequently occurs that individuals have to stand five or six elections before they are successful, which, to persons of the usually advanced age of the applicants, often means total failure. The annual subscriptions are far below what might be expected of such a great industry as the building trade of this great city, and the committee are begging those who are not subscribers to become so, and those who already subscribe and can afford to enlarge their subscriptions to do so.

The pensions, viz., 24*l.* for men and 20*l.* for women, were fixed when the necessaries of life were far less costly than they now are: consequently the allowances no longer represent the same relief that they did formerly, and the committee are therefore very desirous to increase the amounts to such an extent as will give to their unfortunate brethren a somewhat larger share of the comforts so essential to declining years. This they cannot possibly do until they have a larger annual income at their disposal, and for this we now join them in asking.

THE EDUCATION OF ENGINEERS.

SUGGESTED DIPLOMA.

At the first ordinary meeting of the winter session of the Manchester Scientific and Mechanical Society, held on the 13th inst.,

The President (Professor O. Reynolds), in his inaugural address on "Engineers as a Profession," referred at length to the paucity, which he said had existed in the means of education for engineers; and alluding to the cause of preliminary technical education having been held of such little account, said the classical education of our public schools, or the mathematical education given at Cambridge, however much it might develope the power of mind of its possessor, were hardly the one more than the other calculated to forward the study which was his immediate object. By the establishment of special schools, and the extension of those existing, all the more useful branches of science were now, however, within the reach of the student of engineering, and in the form most suitable for him, so that as a step towards understanding the theory of machines, it was not now necessary for him to begin with the theory of astronomy or the doctrine of chances. There were now some fifteen colleges and universities in the country, where not only could a knowledge of all the useful sciences be obtained, but where the application of science and mathematics to the work of the engineer was made a special branch of study; and such was the hold which the study of natural science had taken in all classes, and such were the facilities for those in the lower ranks to rise, that it seemed quite certain that if those who had the best opportunity of qualifying themselves as engineers neglected to do so in the highest manner they would find their places filled by those who, while rising from below, had made better use of their opportunities. To the body of engineers as a whole belonged the duty of prescribing the course of study which should entitle any one to rank as one of them. It was not, however, too much to say that at present nothing of the kind was attempted in England, and although various ways in which it might be done had been under discussion, apparently no conclusions had yet been arrived at. It was done in other countries, and the fact that it was done by other professions was a sufficient proof that it might be done by engineers. Why could not the representative bodies of engineers constitute themselves into examining bodies like the College of Surgeons

or the College of Physicians, and only admit such members to the various grades within their ranks as should satisfy them as to the sufficiency of their education? Such a plan, if effectually carried out, would be a great advantage both to the outside public and to engineers themselves. It might be said that there were already institutions which required some qualification for membership, but the test for mechanical and civil engineers was entirely one of position, instead of one of capacity. The only approach to a real examination test was that for the degrees and certificates in engineering science conferred by the various colleges and universities, but these, however much they might be sought for the intrinsic value of the education they implied, were not as yet generally recognised by engineers. That they soon would be, seemed, however, probable, for one important step towards this had just been commenced by some of the engineers round Manchester, who had agreed to recognise the value of the complete certificates of Owens' College, by taking the holders of them into their work. In conclusion, the president said he hoped the time was not far off when the engineering profession would be able to hold its own, not only in the importance of its work and the capacity of its individual members, but as a coporate body, discharging all functions necessary for handing down its importance to posterity.

"GREAT EASTERN-STREET."

Such is to be the name of the new street from Shoreditch High-street to Old-street, which was formally opened on the 12th inst. by Mr. C. M. Roche, acting for the chairman of the Metropolitan Board of Works (who was absent through the death of a relative). The street forms a portion of the comprehensive scheme of street improvements initiated by the Board in the session of 1872, and confirmed by an Act passed in that year, the particular improvements of which this is part extending from Wapping High-street to New Oxford-street. The expenses incurred or to be incurred under the Act will probably amount in the whole to 2,500,000*l.*, of which sum the portion from Shoreditch to Old-street will have cost about 435,000*l.* Of these sums a large portion will be recouped by the letting and sale of building plots. The length of street from Old-street to Shoreditch is 2,000 ft., and the width is 60 ft., of which 36 ft. are devoted to carriage-ways and 12 ft. to each footway. The roadway is of granite, and the footways of York paving, and the cost of forming the road and of works in connexion will probably amount to something over 34,000*l.* The contractors were Messrs. Nowell & Robson. As 1,600 ft. of the road were opened for traffic some few weeks ago, 400 ft. only remained to be formally opened. The total length of new thoroughfare between Vernon-place, Bloomsbury-square, and Bethnal-green will be, when the improvements are completed, about two miles and a half, forming an uninterrupted communication between the eastern portion of the metropolis and New Oxford-street.

The members of the Metropolitan Board were afterwards entertained at luncheon by the vestry of St. Leonard's, Shoreditch.

NEW ENDOWED SCHOOL BUILDINGS IN CAMBERWELL.

The accumulated proceeds of a legacy left in trust, many years ago, by Mary Datchelor, for repairing her vault and monument in the church of St. Andrew Undershaft, educating children within the parish of St. Andrew, and apprenticing boys to trade, are about to be laid out in the erection and maintenance of spacious new school buildings in Camberwell for the education of girls. The new establishment is to be a middle-class school, capable of accommodating 400 girls. It appears that, in consequence of the continued removal of residents from the City, there have, for some time past, been very few children to educate within the parish of St. Andrew, and the funds of the charity in this respect have been practically useless. This has led to the trustees of the charity inducing the Charity Commissioners to draw up a new scheme for the administration of the funds under the legacy, which now amount to about 30,000*l.*, and which are invested in 3*l.* per cent. Annuities. In the first instance the Charity Commissioners drew up a scheme under which the trustees were empowered to purchase a site, near and convenient to the parish of St. Andrew Undershaft, upon which to erect new school buildings for the education of girls of the middle class. Girls resident in, or connected with, the parish of St. Andrew Undershaft were to have priority of admission, and next to them other girls of the middle class not so connected. In accordance with this scheme, the trustees proposed to erect a school on a site at Hoxton; but the Charity Commissioners did not approve of the neighbourhood of Hoxton, and, after considerable delay, a second scheme has been issued by the Commissioners under which new school-buildings are to erected in Camberwell, on a site which, it is stated, the trustees have secured in the neighbourhood of Camberwell-grove, near Church-street. The fees for each girl are to be 9*l.* a-year, and in connexion there are to be exhibition competitions. The scheme provides for the repairing of the founder's vault and monument in the church of St. Andrew Undershaft, and also for other payments stipulated in the bequest, including small annual sums to the rector, clerk, and sexton, and for the payment of pensions to aged decayed tradesmen and others, and their widows, connected with St. Andrew Undershaft.

THE FALCON LODGE OF FREEMASONS (THIRSK), AND ARCHÆOLOGY.

On the 7th October the members visited Leake, accompanied by the vicar, the Rev. A. T. Atwood, M.A., Rural Dean, and Messrs. Lewis & Brodrick, architects, of York and Ripon. Here many centuries ago stood a large village, which was probably destroyed under the successive attacks by the Danes, the Normans, and the Scots; its existence and extent being partially traceable in the ridges and buried foundations found in the neighbouring fields. Leake Hall, the only remaining house in the village, is an ancient building, containing many of the features of the manorial houses of the sixteenth century, a wide staircase of massive oak, and having its rooms wainscoted in panels.

The most important part of the church, in an antiquarian view, is the tower, which is of Anglo-Norman character, if not earlier. The belfry windows consist of two semicircular-headed lights, divided by a baluster shaft. The tower contains three bells, one of which is reported to have been brought from Rievaulx Abbey, and is inscribed, "O pater Aelred Grendale Miseri Misera." It is supposed to have been the gift of Aelred, the third abbot of Rievaulx, who died 1166, and the form of the letters denotes a period subsequent to the Norman Conquest. The other bells have inscriptions with the date 1618.

There are two curious specimens of ancient carving in oak, bearing figures of nondescript animals, symbols with brief legends, and the date of the work 1519. When the church was restored, in 1854, these were removed from the south aisle, where it is supposed a chantry chapel formerly was, and have been converted into choir-stall ends, and placed in the present chancel.

The nave arcade is Norman, with caps and arches. There is a piscina remaining in the south aisle, and an aumbrey in the north wall of the chancel. A brass plate on a large black stone in the nave, with old English capitals, is inscribed:—

"Of yor charitie p'y for ye soules of John Watson su'tyme Auditor to ye Lord Scroope of Upsall and Alice his wife and their child whose soules Jesu p'don."

The roof is of oak, and corbels remain in the walls, at the same level, showing that formerly it has been much higher, which can be accounted for by the recorded fact that in the incursions of the Danes, during the ninth and tenth centuries, almost all the monasteries and churches were set on fire and destroyed.

Withdrawal of Tender.—At a meeting of the Kensington Board of Guardians, on the 12th inst., a letter was read from Messrs. Browne & Robinson, whose tender for erecting a new board-room and strong-room for 1,253*l.* was accepted on the 28th ult., saying that, in consequence of an error in their estimate of 496*l.*, they must withdraw their tender. The chairman (the Rev. C. Darby Reade) said these contractors had done the same thing once before at another Board of which he was a member. After some conversation the next lowest tender was accepted,—that of Mr. Smale, for 1,533*l.*

A WILBERFORCE NEW CHURCH AT CAMBERWELL.

LAYING THE MEMORIAL STONE.

The memorial stone of one of the five new churches intended to be erected in South London in memory of the late Dr. Wilberforce, Bishop of Winchester, has been laid this week by the Bishop of Guildford. The site of the new church, which is dedicated to St. Luke, is in Rosemary-road, Commercial-road, Camberwell, in the midst of a neighbourhood which has recently been laid out for building purposes, and on which upwards of 200 houses have already been erected, whilst building is going forward at a rapid rate, and what little more than a year or two ago was mainly a large market garden, will shortly be a thickly populated locality. The new church will have a capacity for seating about 1,000 persons. The style of architecture adopted is a mixed Gothic, the materials being moulded red bricks, and Bath stone dressings and windows. The aisles will have lean-to roofs, and the nave will have a lofty clearstory, with an open-timber ceiling. The lower portion of the interior walls, to the height of about 6 ft. from the floor-level, will be wainscoted and painted, whilst the main part will be faced with red brick, uniform with the external elevations of the edifice. The nave will be divided from the aisles by arcades, the arches of which spring from Bath stone columns. The interior dimensions will be upwards of 120 ft. in length, and about 60 ft. in width, including a spacious chancel, with clergy and choir vestries, and organ-chamber. At the west end there will be a tower and spire. Mr. E. K. Cutts is the architect, and the builders are Messrs. Colls & Sons, of Moorgate-street and Camberwell, whose contract is 7,932*l.*, but we understand that this does not include the whole of the interior fittings and intended decorations.

MEMORIALS OF THE LATE BISHOP WILBERFORCE.

An episcopal throne, designed by Sir Gilbert Scott, has been erected in Christ Church Cathedral, Oxford, at a cost of 1,000*l.*, as a memorial to the late Bishop Wilberforce. The following figures are included in it:—On the top of the gables, front, our Saviour; east, the Virgin Mary; west, St. Frideswide; back, a finial; at the four corners, St. Matthew, St. Mark, St. Luke, and St. John. In the angles are the heads of the following bishops:—St. Birinius, St. Remigius, St. Hugh, and St. Grostete. Dr. Wilberforce is represented in a medallion at the back. A new chapel, lecture-room, and other buildings have also been added to Cuddesdon College as memorials of the late bishop, who founded the institution. These latter have cost 6,250*l.* It was determined to erect these memorials at a public meeting held in the Sheldonian Theatre on the 3rd of October, 1873, and they are now just brought to a successful completion.

We have engraved a view of the bishop's throne at Oxford, and will take an early opportunity to publish it.

THE AGE OF ROCKS.

At the first meeting of the session of the Liverpool Geological Society, on the 10th inst., the retiring president, Mr. T. Mellard Reade, C.E., delivered the annual address. The subject was an interesting one, being a calculation of the amount of solid matter removed annually from the surface of England and Wales in solution in rain or rather river water. The result of the calculations, which were of an elaborate nature, founded upon the analyses of water given by the Rivers Pollution Commission in their sixth report, and upon the rainfall chart prepared by Mr. Symons, showed that it would take 13,000 years to remove in this manner 1 ft. in depth of solid matter over the entire surface of England and Wales. This calculation was compared with others. As throwing light upon the age of sedimentary deposits, the calculations, taken together with the amount of matter annually brought down in river water in suspension in the form of mud, are extremely interesting, and Mr. Reade deduced from them that the minimum amount of time which must have elapsed since the first sedimentary rocks we know of were laid down, is in round numbers 500 millions of years, thus supporting the views of Lyell, Hutton, and other geologists as to the immense age of the world.

PUBLIC DRINKING-FOUNTAIN AND CLOCK-TURRET, KIDDERMINSTER.

A DRINKING-FOUNTAIN with clock-turret has been erected by Mr. John Brinton, J.P., of Moor Hall, Stourport, and will be presented by him to his native town—Kidderminster—on this Saturday, the 21st inst., when the ceremony of unveiling will be performed by Mrs. Philpott, the wife of the Bishop of Worcester, the structure being accepted by the Mayor of the borough and the Town Council on behalf of the burgesses. The building, which is in the Geometrical style, is octagonal on plan, measuring 12 ft. 6 in. across, and standing on a platform of York stone, 20 ft. across, the height to the vane being 32 ft. The three taps, placed over Sicilian marble basins are supplied with water from the town mains, and this flows from them to fill the York stone drinking-troughs for dogs.

The arcade surrounding the structure is composed of York stone arches, supported upon red Aberdeen granite shafts, with Cornish granite bases, the body of the structure being built of York stone and the spire erected in Bath stone with blue bands. At the rear is a space enclosed with a handsome iron railing, and planted with ornamental shrubs.

The turret has a clock with three illuminated dials, supplied by Messrs. Swindon & Sons, of Birmingham, also at Mr. Brinton's cost.

The fountain was erected from the design and under the superintendence of Mr. J. T. Meredith, architect, Kidderminster, and the works have been carried out by Mr. John Everal, of Malvern, the carving being executed by Mr. W. Forsyth, of Worcester.

MESSRS. DOULTON AND THEIR BRICKLAYERS.

THE following letter from the Secretary of the Operative Bricklayers' Society reached us immediately after the publication of our last number. It has since appeared in several newspapers, and Messrs. Doulton have contradicted it in parts; nevertheless, we now publish it, as it might otherwise be supposed we were unwilling to give both sides fair play. From the Artisans' Institute, Castle-street, where there is evidently a want of unde standing amongst themselves, we print one more letter. For several other communications on both sides we have not room.

SIR,—As much misunderstanding exists in the public mind regarding this unfortunate dispute, I feel it my duty to explain the matter and to make such suggestions upon it as may be fair and just to employers and workmen.

It has been stated that we, the Bricklayers' Society, object to any workmen other than bricklayers fixing terra-cotta, which is not true, and is calculated to place us in a wrong light before the public. What we have hitherto contended for is the following:—Where the walls of a brick building are ornamented with terra-cotta, the bricklayer should have the fixing of the ornamental work, the same as they do in ganged arches, cornices, mullions, &c., which are composed of brick worked into various ornamental forms by the bricklayers, according to the specifications of the architect. We have also considered that where the walls of a building are composed of stone and the ornamentation is terra cotta such work could be advantageously done by a mason. The same principle we have contended should apply to the plasterer; where the walls of buildings are to be cemented or stuccoed it would be quite consistent with his ordinary work that the plasterer should have the fixing of the terra-cotta. It has been asserted that the bricklayers know nothing of, and are incompetent to fix, terra-cotta; our answer to that is by giving the following places where terra-cotta has been set by bricklayers. The work must answer for itself. At 200 houses, villas, and mansions in Ferndale-road, Clapham, for Mr. Jennings, terra-cotta-maker and engineer; the Natural History Museum, South Kensington, where from thirty to forty bricklayers are now setting terra-cotta. Thomas Cook and W. Humphreys, both members of our Society, fixed all the terra-cotta in Mr. Doulton's house at Tooting-common. The case in dispute has arisen in consequence of the men on the works having taken the above view of the question. When the works commenced a number of bricklayers, consisting of Society and non-Society men, and as competent a lot of workmen as were to be found in London or elsewhere, went to work with the belief that they would have, as usual, the setting of the terra-cotta. When they had been working nearly two months, and had reached the second story of the buildings, they were surprised to find that two men, who had previously worked as plasterers, were brought on to the works and put to do the terra-cotta ornamentations. The men, believing that the usage of the trade was thus unfairly interfered with, had a consultation among themselves, and resolved on laying the case before our Council. After an investigation, the Council deemed it advisable to send one of their members, W. Ashdown, to the employer, with a view of effecting a satisfactory adjustment of the difficulty. The delegate proceeded at once to the works and saw the manager, Mr. Phillips, and upon the grounds above stated desired the removal of the two men. Mr. Phillips in a summary manner declined to entertain the question. This was reported to the Operative Bricklayers' Council, and the following resolution was the result:—"That in the event of the two plasterers not being removed from setting terra-cotta with the bricklayers the men be empowered to act in whatever way they may deem fit." The men continued working out the week, and on the following Monday they held a meeting, and decided upon consulting myself upon the whole matter. They came to me and wished me to see Messrs. Doulton on the subject. To this proposition I at once assented. I went to the works and saw Mr. Doulton and Mr. Phillips, who received me most courteously. During the conversation, which lasted upwards of an hour, I made the following proposition:—Would they agree for the bricklayers to fix the terra-cotta work on the two large buildings, and the plasterers to remain doing the terra-cotta work on the job in the High-street? This proposition, which I thought was a fair compromise of the dispute, was refused by Mr. Doulton. I then proceeded to the public-house close by the works where the men were assembled, and reported the foregoing facts to them, when a resolution was immediately moved by the men, and unanimously carried, to the effect that the men would not return to work under existing circumstances; and a picket was appointed to inform bricklayers of the dispute and where they might obtain work. It will thus be seen that this dispute is one emanating from society and non-society men themselves, and not brought about by the action or wish of the Bricklayers' Society, and it is as much regretted by our Council as it ever could be by employers or any other portion of the community.

If the two plasterers had been on the work when it commenced I feel quite sure that no objection would have been taken to them by the men, but the fact of bringing them into the work after it had reached the second floor, and then for our men to be told they were not competent to do the work, was more than the self-respect of the bricklayers could bear. To prevent any further misunderstanding regarding the wishes or intentions of the Executive Council of the Operative Bricklayers' Society, I most respectfully make on behalf of the society the following proposition:—That if the grounds, as above stated, upon which bricklayers, masons, and plasterers were interpreted by us to fix terra cotta are not approved of, we are most willing to have the whole question submitted to a board of conciliation and arbitration, to be composed in the following or any other satisfactory manner:—That Messrs. Doulton & Co. elect three gentlemen in whom they have confidence, that the Masons' Society elect three, that the Plasterers elect three, and the Bricklayers' Society elect three, the whole of these to form a board and choose a chairman from outside the board whose known character and position in society should place him beyond suspicion as to prejudice or partiality. I earnestly hope that the proposition I have made will meet the cordial approval of Messrs. Doulton & Co.,

E. COULSON, General Secretary,
Operative Bricklayers' Society.

SIR,—By the publication of the following, you may be able to remove any misapprehension that may have arisen in the minds of your readers from the perusal of the letters that have appeared in the last two numbers of your journal.

In the first, your correspondent, Mr. Morris,—to whose letter, as a whole, I would fain make no remark, only that he advises Messrs. Doulton & Co., and any other employers requiring specially skilled bricklayers to apply to the Bricklayers' Technical Class, and they would get what they want. To this I, as one of the two teachers of the above class, beg leave to say that these classes have been commenced but, say, four months, and although during even that short period great progress in technical knowledge has been made by the students, who number between forty and fifty, it would be a rash proceeding to recommend them as especially skilled workmen on the strength of that alone. The truth is, we have no means of ascertaining whether they have had this theoretical knowledge put to a practical test in actual execution; or, even if we had, it is not our mission to keep a supply of such like articles of merchandise, to serve out to those who choose to apply for them, nor have we any guarantee that the men would go where we chose to send them. Much less has Mr. Morris any authority to make such a statement.

In the next letter to which I would allude your correspondent, Mr. Solly, for whom I entertain the most profound respect, makes a statement upon the authority of one of the teachers of the bricklayers' class. To this I would beg leave to say that the authority for this statement did not originate with me, simply because I know nothing about the strike other than what I read in the papers, and I am only too sorry the men were not better advised; neither do I know anything about the terra cotta at the Natural History Museum, and I am careless who sets it either there or anywhere else, although I may say I have no doubt bricklayers can be found who are as able as any other class of skilled workmen to set terra cotta, feeling, as I do, pretty sure that the greatest skill required in dealing with terra cotta lies in the manufacture; but I must say just at this time when a bold and honourable struggle was being initiated to advance their status in the building trade, and remove the cause for the prejudice which it is well known does exist against them as a class, it is a pity some other means could not have been found to settle this unfortunate dispute about so trifling a matter.

J. WOODLEY,
The Originator of the Bricklayers' Technical Class.

"MODERN TYRANTS."

SIR,—Your remarks upon this subject in the *Builder* cannot but be regarded as just and equitable. An impartial observer unswayed by prejudice must view the late proceedings at Messrs. Doulton's works with indignation. Such outbursts of petty despotism on the part of trade unionists only tend to damage the institution. The working classes have "gone up like a rocket," and will, if they do not display greater discrimination and judgment, "come down like the stick." The institution of trade unions has probably, more than any other circumstances combined, tended to give an ever-increasing impetus to foreign competition. It is well known that in works of the nature of that at present in dispute, alien aid has had to be procured whenever extra care or delicacy was required in the manipulation. If the trade unions would guarantee that all their members are efficient workmen, the uses of such an institution would be considerably enhanced. An unskilled unionist may demand the same amount of wages as his skilled colleague, which proceeding is a palpable and gross injustice, that must ultimately have the effect of deteriorating the technical capabilities of the workmen. That praiseworthy emulation which prompts one workman to excel another is smothered for lack of appreciation and advancement which in other cases would be the legitimate reward of superiority.

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AN ARCHITECT.

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L. L.

CHALK.

SIR,—Will any of your numerous readers give me some information respecting the proper treatment of chalk previously to its being used for building purposes, for both inside and outside work?

C. W.

INDUSTRIAL DWELLINGS IN THE MIDLAND COUNTIES.

The first general meeting of shareholders of the Midland Improved Industrial Dwellings Association (Limited) was held in Derby on the 10th inst.

The report presented by the directors stated that the object for which the association was formed was to endeavour to meet in some degree the great and pressing want which exists in some of the Midland towns for increased and improved house accommodation. That this could be done successfully, both in a sanitary and financial sense, had been satisfactorily proved by the operation of similar associations in other towns. During the last four months numerous facts had come to the knowledge of the directors, which showed beyond a doubt that no part of the kingdom stands more in need of the operation of such an association than the large Midland towns. Instances of great individual inconvenience are being frequently brought under their notice. As the main object contemplated was to deal with the more densely-populated parts of Derby and Nottingham, attention was first directed to these localities, and the directors had secured what were considered very suitable sites in both towns for the erection of blocks of improved dwellings. A portion of the buildings on the site in Brook-street, Derby, is already being converted into a model lodging-house for single men, with accommodation for sixty-eight beds. The beds will be enclosed by partitions 7 ft. high, giving to each the privacy of a separate room. The dining-room, kitchen, lavatory, and sanitary arrangements will be made as complete as possible. Tenders had been received for the erection of the first block of buildings on another portion of the site, which were under the consideration of the directors. Numerous applications had already been made to the manager for the shops and dwellings. The site chosen in Nottingham, at the corner of Heathcot-street, was considered a very advantageous one, and the directors would be prepared to deal with it as soon as a sufficient amount of capital has been subscribed. Important local support had been promised in Chesterfield, on condition that the first want supplied there should be a model lodging-house.

THE DEATH IN A SEWER AT BATTERSEA.

CONCLUSION OF THE INQUEST.

On the 12th inst. Mr. Carter, coroner for East Surrey, resumed, for the tenth time, the adjourned inquest on the body of John Thomas Lomas, a sewer-flusher in the employ of the Metropolitan Board of Works, who was poisoned in the New-road Sewer on the 9th August last, under circumstances already reported.

Mr. Frederick Alfred Manning, residing at Effingham Lodge, Upper Norwood, was called by Mr. Pettingall, and deposed that he was an analytical chemist, and had given much attention to sewage matters. He had made a thorough inspection of Mr. Wallace's premises. He considered that the cause of the suffocation of the deceased was the decomposition of the sewage matter in the hot weather, and in a confined space. This fact would, in his opinion, be sufficient of itself to cause death. The sewer was not now large enough to drain the important district through which it passed. He did not attribute the death to anything connected with Mr. Wallace's works.

Mr. Thomas William Keats was next called by Mr. Straight. He deposed that he was consulting chemist to the Metropolitan Board. Fatal accidents of this kind were very rare, although no doubt the men became affected by the sewer gases. Out of forty accidents, going back to 1875, only five were due to sewer gases. He had heard the evidence of the sewer men. He was of opinion, in reference to the men working in the morning, that they must have been inhaling the same gases as after dinner. He thought death was caused by the presence of sulphuretted hydrogen.

At the conclusion of Mr. Keats's evidence the coroner announced that the jury had agreed upon their verdict, which the foreman then delivered as follows:—

"We find that John Lomas was killed by poisonous gases emanating from refuse chemical matter discharged into the New-road sewer from the works of Mr. Hugh Wallace, but by whom they were thrown in there is no evidence to show. The jury are of opinion that great censure is due to the Wandsworth Board of Works for permitting those chemical matters to be discharged into the New-road sewer, thereby perilling the lives of the men who were employed in the sewers, and endangering the health and comfort of the inhabitants of the neighbourhood. We wish to add, in conclusion, that we consider the greatest praise is due to the sewer-flusher Gates, who so bravely went into the sewer in a half-stupefied state, when almost dead himself, and so rescued the other men, Scott and Plester, who must have otherwise lost their lives as well as the deceased; and we sincerely regret that we have no institution in this country for awarding a medal to the men who save life in sewers as well as in rivers."

Mr. Thomas Buckham, C.E. (New Wandsworth), writes:—"Will you kindly allow me to state, in reply to Mr. F. A. Manning's opinion at the recent inquest, that death had resulted from decomposition of sewage-matter in a sewer not large enough to drain so important a district, that this sewer was designed by myself, submitted to the Metropolitan Board of Works, and approved of by their eminent engineer, Sir Joseph William Bazalgette, C.B.?"

At the meeting of the Metropolitan Board of Works on the 13th inst., the clerk read the result of the coroner's inquest as given above. Mr. Richardson, in moving that this matter should be referred to the Works and General Purposes Committee, with power to confer with her Majesty's Government, stated that it was desirable that the Board should have a controlling power over chemical works similar to that exercised by the Board in respect to slaughterhouses, and he could not imagine a stronger case in support of this than this case of death in a sewer at Battersea.

SEWERAGE MATTERS.

Ripley.—The Local Board of the district of Ripley, Derbyshire, having applied to the Local Government Board for permission to borrow 3,000*l.* for the purchase of about thirty acres of the Padley Hall Farm for the disposal, by means of irrigation, of the sewage from the northern side of their district, a public inquiry was held by Mr. Robert Morgan, C.E., in Ripley, on the 22nd ult. The Board was represented by the chairman and several other members, with the clerk to the Board; and the application was supported by Mr. R. Argile, jun., the engineer of the proposed works. There was no opposition, and it was understood that there would be no difficulty in obtaining the consent of the Local Government Board to the proposal.

Oxford.—Great progress has been made during the past year with the Oxford main drainage scheme. Most of the heavy works have been completed, including the outfall sewer from Christ Church Meadow to the pumping station at Littlemore; the western sewer, from the river Cherwell through Christ Church Meadow, St. Aldate's, St. Ebbe's, and St. Thomas, to Osney; the north-western sewer, from Titmouse-lane, through Worcester College Gardens, to Albert-street, Jericho; the short length of the north-eastern sewer across Merton Field, which links the drainage of the central and north-eastern part of the district with the outfall; the eastern sewer, through St. Clement's, collecting most of the drainage east of the Cherwell; and nearly the whole of the sewer across the valley to unite New Hinksey with the outfall; besides a large number of branch mains; in all,—three miles of brick culverts, varying in size from 4 ft. 6 in. by 3 ft. to 2 ft. by 1 ft. 4 in., and 11¼ miles of pipe sewers and surface drains, ranging from 18 in. down to 6 in. in diameter. On these works it has been necessary to carry out several difficult tunnelling operations, viz.:—Underneath the Castle Tower and other County Gaol premises adjoining, close to the Mill, and at a lower level than the bed of the river; under the Great Western Railway near the station; the malt-houses in Titmouse-lane; the house against the Canal Wharf, and other places. Cast-iron tubes, encased in concrete, have been laid underneath the two branches of the river at Pacey's Bridge, and the Canal has been crossed at the Goods Wharf. The sewers have also been carried twice under Trill Mill Stream, and a third crossing is now in hand. A dam has been put in for laying an inverted syphon under the river at Osney, and a similar syphon crossing the main river near Saunders' Bridge is partly done. These last-named works have, however, made but slow progress, owing to the obstacle presented by the hard conglomerate below, through which the piles have to be driven, and the consequent difficulty of making a watertight dam. A considerable number of house-connexions have been made, and about half the district is now in communication with the new system, the old outlets into the rivers and streams being temporarily used, and the engineer (Mr. W. H. White, C.E.) anticipates that the works within the city will be nearly or quite finished this year, except the remaining house-connexions. The Board has purchased about 350 acres of land for irrigation, and the works necessary for that purpose will be commenced shortly.

Dudley.—The Earl of Dudley has offered to take the whole of the sewage from the drainage of Dudley on to his farm free of expense, and to find an engineer to undertake the preparing of the sewerage scheme. The Town Council has decided to accept the offer of his lordship. This will, it is said, save the ratepayers 50,000*l.*

Dublin Waterworks.—The Dublin papers report a serious burst in the Vartry pipe, about half a mile from Enniskerry. The pipe passes under the river which flows between Enniskerry and Bray, and the burst has taken place right in the centre of the stream, a troublesome place to get at by reason of the swollen condition of the river. Large stones were driven aside, and the water issued from the pipe in great volumes, considerably adding to the size of the stream. If heavy floods come, there is reason to fear that Dublin will be short of water.

THE GROWTH OF LANCASHIRE.

A new valuation of Lancashire, ordered by the county magistrates, for county rate purposes, has just been completed, which shows the great expansion which has taken place in the buildings and population of the several Lancashire towns within a very recent period. Under the new valuation the rateable value of the county is now 15,638,162*l.*, as compared with 12,552,000*l.* in 1872, being an increase of 3,086,162*l.*, in four years, or about 20 per cent. over the whole county, but the increase in the towns shows a much larger percentage, the valuation in some cases being more than double that of 1872. The town of Barrow-in-Furness, of which we have spoken, stands at the head of the list, the new valuation of that town being 167,492*l.*, as compared with 75,652*l.* in 1872, being an increase of 91,840*l.*, or more than 120 per cent. in the four years. This increase indicates an enormous amount of building, in houses and manufacturing and other business establishments, which has been going forward here. The comparatively young town of Southport is next in order of increase, the new valuation being 168,172*l.*, as compared with 91,870*l.* in 1872, showing an increase of 76,302*l.*, or about 80 per cent. in the four years. The new valuation of all the large towns also shows a large percentage of increase, that of Manchester being 2,243,406*l.*, as compared with 1,766,268*l.* in 1872, an increase of 477,138*l.*, or nearly 25 per cent.; Liverpool, 3,027,380*l.*, as compared with 2,782,193*l.* in 1872, increase 245,184*l.*, or about 9 per cent.; Salford, 629,514*l.*, as compared with 460,498*l.* in 1872, increase, 169,116*l.*, or about 35 per cent.; and Bootle, 103,770*l.*, as compared with 68,660*l.* in 1872, increase 35,110*l.*, or about 50 per cent. The two last-named boroughs may be regarded as portions of Manchester and Liverpool respectively, as they immediately adjoin the two great Lancashire towns.

THE NEWCASTLE ASSIZE COURTS.*

Sir,—Provincial architects have fondly imagined hitherto that the practice of "touting" for commissions was confined to a "limited company" composed of the fag end of the profession. That pleasant delusion has been rudely dissipated by the statements in your paper of the 16th September as to the proposed new Assize Courts at Newcastle. From that statement, in the absence of all explanation from Sir G. G. Scott, the provincial architects aforesaid may conclude that the practice of their London brethren is different from theirs, in the matter of "touting"; seeing that one of the most eminent architects in London, who was lately President of the Institute, condescends to practise it. It may be an unfounded rumour, but it is hinted that the commission for the proposed Hook Memorial Church at Leeds was obtained by similar means.

Already the example set has been followed, as I note in your paper of the 7th that a Mr. Frere, of London, has written to the Corporation of Great Yarmouth, expressing a "strong desire" to make designs for their new Town-hall, almost in the same terms as Sir Gilbert used in the Newcastle case. Can it be that the depression of trade is arresting the flow of commissions to certain offices? However that may be, the matter is one that requires explanation if architects are still to be regarded as exercising a profession and not a trade. I inclose my card.

A Provincial Architect.

CERTIFICATED HOUSES.

In these days of sanitary questions, there is one which has lately been brought forward by the Society of Arts. This society proposes that an Act of Parliament should be passed requiring every house newly built to receive a certificate from an official that the sanitary arrangements are all that are required to render the house tenantable. I have observed numerous complaints from new tenants that when they have taken possession of their houses they are put to an extra expense to put their drains in order. A great deal of this annoyance might be saved if the District Board of Works would at once appoint an official surveyor, who was really competent to give an opinion from his special

* We continue to receive so many letters on this subject that we cannot do less than print one of them. A few words from Sir G. G. Scott would doubtless remove the impression which widely exists.

PUBLIC DRINKING-FOUNTAIN AND CLOCK-TURRET, KIDDERMINSTER.

A DRINKING-FOUNTAIN with clock-turret has been erected by Mr. John Brinton, J.P., of Moor Hall, Stourport, and will be presented by him to his native town—Kidderminster—on this Saturday, the 21st inst., when the ceremony of unveiling will be performed by Mrs. Philpott, the wife of the Bishop of Worcester, the structure being accepted by the Mayor of the borough and the Town Council on behalf of the burgesses. The building, which is in the Geometrical style, is octagonal on plan, measuring 12 ft. 6 in. across, and standing on a platform of York stone, 20 ft. across, the height to the vane being 32 ft. The three taps, placed over Sicilian marble basins are supplied with water from the town mains, and this flows from them to fill the York stone drinking-troughs for dogs.

The arcade surrounding the structure is composed of York stone arches, supported upon red Aberdeen granite shafts, with Cornish granite bases, the body of the structure being built of York stone and the spire erected in Bath stone with blue bands. At the rear is a space enclosed with a handsome iron railing, and planted with ornamental shrubs.

The turret has a clock with three illuminated dials, supplied by Messrs. Swindon & Sons, of Birmingham, also at Mr. Brinton's cost.

The fountain was erected from the design and under the superintendence of Mr. J. T. Meredith, architect, Kidderminster, and the works have been carried out by Mr. John Everal, of Malvern, the carving being executed by Mr. W. Forsyth, of Worcester.

MESSRS. DOULTON AND THEIR BRICKLAYERS.

THE following letter from the Secretary of the Operative Bricklayers' Society reached us immediately after the publication of our last number. It has since appeared in several newspapers, and Messrs. Doulton have contradicted it in parts; nevertheless, we now publish it, as it might otherwise be supposed we were unwilling to give both sides fair play. From the Artisans' Institute, Castle-street, where there is evidently a want of unde standing amongst themselves, we print one more letter. For several other communications on both sides we have not room.

SIR,—As much misunderstanding exists in the public mind regarding this unfortunate dispute, I feel it my duty to explain the matter and to make such suggestions upon it as may be fair and just to employers and workmen.

It has been stated that we, the Bricklayers' Society, object to any workmen other than bricklayers fixing terra-cotta, which is not true, and is calculated to place us in a wrong light before the public. What we have hitherto contended for is the following:—Where the walls of a brick building are ornamented with terra-cotta, the bricklayer should have the fixing of the ornamental work, the same as they do in gauged arches, cornices, mullions, &c., which are composed of brick worked into various ornamental forms by the bricklayers, according to the specifications of the architect. We have also considered that where the walls of a building are composed of stone and the ornamentation is terra cotta such work could be advantageously done by a mason. The same principle we have contended should apply to the plasterer; where the walls of buildings are to be cemented or stuccoed it would be quite consistent with his ordinary work that the plasterer should have the fixing of the terra-cotta. It has been asserted that the bricklayers know nothing of, and are incompetent to fix, terra-cotta; our answer to that is by giving the following places where terra-cotta has been set by bricklayers. The work must answer for itself. At 200 houses, villas, and mansions in Ferndale-road, Clapham, for Mr. Jennings, terra-cotta-maker and engineer; the Natural History Museum, South Kensington, where from thirty to forty bricklayers are now setting terra-cotta. Thomas Cook and W. Humphreys, both members of our Society, fixed all the terra-cotta in Mr. Doulton's house at Tooting-common. The case in dispute has arisen in consequence of the men on the works having taken the above view of the question. When the works commenced a number of bricklayers, consisting of Society and non-Society men, and as competent a lot of workmen as were to be found in London or elsewhere, went to work with the belief that they would have, as usual, the setting of the terra-cotta. When they had been working nearly two months, and had reached the second story of the buildings, they were surprised to find that two men, who had previously worked as plasterers, were brought on to the works and put to do the terra-cotta ornamentations. The men, believing that the usage of the trade was thus unfairly interfered with, had a consultation among themselves, and resolved on laying the case before our Council. After an investigation, the Council deemed it advisable to send one of their members, W. Ashdown, to the employer, with a view of effecting a satisfactory adjustment of the difficulty. The delegate proceeded at once to the works and saw the manager, Mr. Phillips, and upon the grounds above stated desired the removal of the two men. Mr. Phillips in a summary manner declined to entertain the question. This was reported to the Operative Bricklayers' Council, and the following resolution was the result:—"That in the event of the two plasterers not being removed from setting terra-cotta with the bricklayers the men be empowered to act in whatever way they may deem fit." The men continued working out the week, and on the following Monday they held a meeting, and decided upon consulting myself upon the whole matter. They came to me and wished me to see Messrs. Doulton on the subject. To this proposition I at once assented. I went to the works and saw Mr. Doulton and Mr. Phillips, who received me most courteously. During the conversation, which lasted upwards of an hour, I made the following proposition:—Would they agree for the bricklayers to fix the terra-cotta work on the two large buildings, and the plasterers to remain doing the terra-cotta work on the job in the High-street? This proposition which I thought was a fair compromise of the dispute, was refused by Mr. Doulton. I then proceeded to the public-house close by the works where the men were assembled, and reported the foregoing facts to them, when a resolution was immediately moved by the men, and unanimously carried, to the effect that the men would not return to work under existing circumstances; and a picket was appointed to inform bricklayers of the dispute and where they might obtain work. It will thus be seen that this dispute is one emanating from society and non-society men themselves, and not brought about by the action or wish of the Bricklayers' Society, and it is as much regretted by our Council as it ever could be by employers or any other portion of the community.

If the two plasterers had been on the work when it commenced I feel quite sure that no objection would have been taken to them by the men, but the fact of bringing them into the work after it had reached the second floor, and then for our men to be told they were not competent to do the work, was more than the self-respect of the bricklayers could bear. To prevent any further misunderstanding regarding the wishes or intentions of the Executive Council of the Operative Bricklayers' Society, I most respectfully make on behalf of the society the following proposition:—That if the grounds, as above stated, upon which bricklayers, masons, and plasterers were interpreted by us to fix terra cotta are not approved of, we are most willing to have the whole question submitted to a board of conciliation and arbitration, to be composed in the following or any other satisfactory manner:—That Messrs. Doulton & Co. elect three gentlemen in whom they have confidence, that the Masons' Society elect three, that the Plasterers elect three, and the Bricklayers' Society elect three, the whole of these to form a board and choose a chairman from outside the board whose known character and position in society should place him beyond suspicion as to prejudice or partiality. I earnestly hope that the proposition I have made will meet the cordial approval of Messrs. Doulton & Co.,

E. COULSON, General Secretary,
Operative Bricklayers' Society.

SIR,—By the publication of the following, you may be able to remove any misapprehension that may have arisen in the minds of your readers from the perusal of the letters that have appeared in the last two numbers of your journal.

In the first, your correspondent, Mr. Morris,—to whose letter, as a whole, I would fain make no remark, only that he advises Messrs. Doulton & Co., and any other employers requiring specially skilled bricklayers to apply to the Bricklayers' Technical Class, and they would get what they want. To this I, as one of the two teachers of the above class, beg leave to say that these classes have been commenced but, say, four months, and although during even that short period great progress in technical knowledge has been made by the students, who number between forty and fifty, it would be a rash proceeding to recommend them as especially skilled workmen on the strength of that alone. The truth is, we have no means of ascertaining whether they have had this theoretical knowledge put to a practical test in actual execution; or, even if we had, it is not our mission to keep a supply of such like articles of merchandise, to serve out to those who choose to apply for them, nor have we any guarantee that the men would go where we chose to send them. Much less has Mr. Morris any authority to make such a statement.

In the next letter to which I would allude your correspondent, Mr. Solly, for whom I entertain the most profound respect, makes a statement upon the authority of one of the teachers of the bricklayers' class. To this I would beg leave to say that the authority for this statement did not originate with me, simply because I know nothing about the strike other than what I read in the papers, and I am only too sorry the men were not better advised; neither do I know anything about the terra cotta at the Natural History Museum, and I am careless who sets it either there or anywhere else, although I may say I have no doubt bricklayers can be found who are as able as any other class of skilled workmen to set terra cotta, feeling, as I do, pretty sure that the greatest skill required in dealing with terra cotta lies in the manufacture; but I must say just at this time when a bold and honourable struggle was being initiated to advance their status in the building trade, and remove the cause for the prejudice which it is well known does exist against them as a class, it is a pity some other means could not have been found to settle this unfortunate dispute about so trifling a matter.

J. WOODLEY,
The Originator of the Bricklayers' Technical Class.

"MODERN TYRANTS."

SIR,—Your remarks upon this subject in the *Builder* cannot but be regarded as just and equitable. An impartial observer unswayed by prejudice must view the late proceedings at Messrs. Doulton's works with indignation. Such outbursts of petty despotism on the part of trade unionists only tend to damage the institution. The working classes have "gone up like a rocket," and will, if they do not display greater discrimination and judgment, "come down like the stick." The institution of trade unions has probably, more than any other circumstances combined, tended to give an ever-increasing impetus to foreign competition. It is well known that in works of the nature of that at present in dispute, alien aid has had to be procured whenever extra care or delicacy was required in the manipulation. If the trade unions would guarantee that all their members are efficient workmen, the uses of such an institution would be considerably enhanced. An unskilled unionist may demand the same amount of wages as his skilled colleague, which proceeding is a palpable and gross injustice, that must ultimately have the effect of deteriorating the technical capabilities of the workmen. That praiseworthy emulation which prompts one workman to excel another is smothered for lack of appreciation and advancement which in other cases would be the legitimate reward of superiority.

What, will be asked, is the use of superior technical education to the unionist? Why should one man make himself superior to another if he is to derive no advantage? Technical education will be in a great measure nothing short of a dead letter if modern advancement is to be held in check by the trammels of unionist regulations, which are entirely opposed to the principles of free trade and legitimate competition.

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DENCHWORTH CHURCH.

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INDUSTRIAL DWELLINGS IN THE MIDLAND COUNTIES.

The first general meeting of shareholders of the Midland Improved Industrial Dwellings Association (Limited) was held in Derby on the 10th inst.

The report presented by the directors stated that the object for which the association was formed was to endeavour to meet in some degree the great and pressing want which exists in some of the Midland towns for increased and improved house accommodation. That this could be done successfully, both in a sanitary and financial sense, had been satisfactorily proved by the operation of similar associations in other towns. During the last four months numerous facts had come to the knowledge of the directors, which showed beyond a doubt that no part of the kingdom stands more in need of the operation of such an association than the large Midland towns. Instances of great individual inconvenience are being frequently brought under their notice. As the main object contemplated was to deal with the more densely-populated parts of Derby and Nottingham, attention was first directed to these localities, and the directors had secured what were considered very suitable sites in both towns for the erection of blocks of improved dwellings. A portion of the buildings on the site in Brook-street, Derby, is already being converted into a model lodging-house for single men, with accommodation for sixty-eight beds. The beds will be enclosed by partitions 7 ft. high, giving to each the privacy of a separate room. The dining-room, kitchen, lavatory, and sanitary arrangements will be made as complete as possible. Tenders had been received for the erection of the first block of buildings on another portion of the site, which were under the consideration of the directors. Numerous applications had already been made to the manager for the shops and dwellings. The site chosen in Nottingham, at the corner of Heathcot-street, was considered a very advantageous one, and the directors would be prepared to deal with it as soon as a sufficient amount of capital has been subscribed. Important local support had been promised in Chesterfield, on condition that the first want supplied there should be a model lodging-house.

THE DEATH IN A SEWER AT BATTERSEA.

CONCLUSION OF THE INQUEST.

On the 12th inst. Mr. Carter, coroner for East Surrey, resumed, for the tenth time, the adjourned inquest on the body of John Thomas Lomas, a sewer-flusher in the employ of the Metropolitan Board of Works, who was poisoned in the New-road Sewer on the 9th August last, under circumstances already reported.

Mr. Frederick Alfred Manning, residing at Effingham Lodge, Upper Norwood, was called by Mr. Pettingall, and deposed that he was an analytical chemist, and had given much attention to sewage matters. He had made a thorough inspection of Mr. Wallace's premises. He considered that the cause of the suffocation of the deceased was the decomposition of the sewage matter in the hot weather, and in a confined space. This fact would, in his opinion, be sufficient of itself to cause death. The sewer was not now large enough to drain the important district through which it passed. He did not attribute the death to anything connected with Mr. Wallace's works.

Mr. Thomas William Keats was next called by Mr. Straight. He deposed that he was consulting chemist to the Metropolitan Board. Fatal accidents of this kind were very rare, although no doubt the men became affected by the sewer gases. Out of forty accidents, going back to 1875, only five were due to sewer gases. He had heard the evidence of the sewer men. He was of opinion, in reference to the men working in the morning, that they must have been inhaling the same gases as after dinner. He thought death was caused by the presence of sulphuretted hydrogen.

At the conclusion of Mr. Keats's evidence the coroner announced that the jury had agreed upon their verdict, which the foreman then delivered as follows:—

"We find that John Lomas was killed by poisonous gases emanating from refuse chemical matter discharged into the New-road sewer from the works of Mr. Hugh Wallace, but by whom they were thrown in there is no evidence to show. The jury are of opinion that great censure is due to the Wandsworth Board of Works for permitting those chemical matters to be discharged into the New-road sewer, thereby perilling the lives of the men who were employed in the sewers, and endangering the health and comfort of the inhabitants of the neighbourhood. We wish to add, in conclusion, that we consider the greatest praise is due to the sewer-flusher Gates, who so bravely went into the sewer in a half-stupefied state, when almost dead himself, and so rescued the other men, Scott and Plester, who must have otherwise lost their lives as well as the deceased; and we sincerely regret that we have no institution in this country for awarding a medal to the men who save life in sewers as well as in rivers."

Mr. Thomas Buckham, C.E. (New Wandsworth), writes:—"Will you kindly allow me to state, in reply to Mr. F. A. Manning's opinion at the recent inquest, that death had resulted from decomposition of sewage-matter in a sewer not large enough to drain so important a district, that this sewer was designed by myself, submitted to the Metropolitan Board of Works, and approved of by their eminent engineer, Sir Joseph William Bazalgette, C.B.?"

At the meeting of the Metropolitan Board of Works on the 13th inst., the clerk read the result of the coroner's inquest as given above. Mr. Richardson, in moving that this matter should be referred to the Works and General Purposes Committee, with power to confer with her Majesty's Government, stated that it was desirable that the Board should have a controlling power over chemical works similar to that exercised by the Board in respect to slaughterhouses, and he could not imagine a stronger case in support of this than this case of death in a sewer at Battersea.

SEWERAGE MATTERS.

Ripley.—The Local Board of the district of Ripley, Derbyshire, having applied to the Local Government Board for permission to borrow 3,000*l.* for the purchase of about thirty acres of the Padley Hall Farm for the disposal, by means of irrigation, of the sewage from the northern side of their district, a public inquiry was held by Mr. Robert Morgan, C.E., in Ripley, on the 22nd ult. The Board was represented by the chairman and several other members, with the clerk to the Board; and the application was supported by Mr. R. Argile, jun., the engineer of the proposed works. There was no opposition, and it was understood that there would be no difficulty in obtaining the consent of the Local Government Board to the proposal.

Oxford.—Great progress has been made during the past year with the Oxford main drainage scheme. Most of the heavy works have been completed, including the outfall sewer from Christ Church Meadow to the pumping station at Littlemore; the western sewer, from the river Cherwell through Christ Church Meadow, St. Aldate's, St. Ebbe's, and St. Thomas, to Osney; the north-western sewer, from Titmouse-lane, through Worcester College Gardens, to Albert-street, Jericho; the short length of the north-eastern sewer across Merton Field, which links the drainage of the central and north-eastern part of the district with the outfall; the eastern sewer, through St. Clement's, collecting most of the drainage east of the Cherwell; and nearly the whole of the sewer across the valley to unite New Hinckesey with the outfall; besides a large number of branch mains; in all,—three miles of brick culverts, varying in size from 4 ft. 6 in. by 3 ft. to 2 ft. by 1 ft. 4 in., and 11¼ miles of pipe sewers and surface drains, ranging from 18 in. down to 6 in. in diameter. On these works it has been necessary to carry out several difficult tunnelling operations, viz.:—Underneath the Castle Tower and other County Gaol premises adjoining, close to the Mill, and at a lower level than the bed of the river; under the Great Western Railway near the station; the malt-houses in Titmouse-lane; the house against the Canal Wharf, and other places. Cast-iron tubes, encased in concrete, have been laid underneath the two branches of the river at Pacey's Bridge, and the Canal has been crossed at the Goods Wharf. The sewers have also been carried twice under Trill Mill Stream, and a third crossing is now in hand. A dam has been put in for laying an inverted syphon under the river at Osney, and a similar syphon crossing the main river near Saunders' Bridge is partly done. These last-named works have, however, made but slow progress, owing to the obstacle presented by the hard conglomerate below, through which the piles have to be driven, and the consequent difficulty of making a watertight dam. A considerable number of house-connexions have been made, and about half the district is now in communication with the new system, the old outlets into the rivers and streams being temporarily used, and the engineer (Mr. W. H. White, C.E.) anticipates that the works within the city will be nearly or quite finished this year, except the remaining house-connexions. The Board has purchased about 350 acres of land for irrigation, and the works necessary for that purpose will be commenced shortly.

Dudley.—The Earl of Dudley has offered to take the whole of the sewage from the drainage of Dudley on to his farm free of expense, and to find an engineer to undertake the preparing of the sewerage scheme. The Town Council has decided to accept the offer of his lordship. This will, it is said, save the ratepayers 50,000*l.*

Dublin Waterworks.—The Dublin papers report a serious burst in the Vartry pipe, about half a mile from Enniskerry. The pipe passes under the river which flows between Enniskerry and Bray, and the burst has taken place right in the centre of the stream, a troublesome place to get at by reason of the swollen condition of the river. Large stones were driven aside, and the water issued from the pipe in great volumes, considerably adding to the size of the stream. If heavy floods come, there is reason to fear that Dublin will be short of water.

THE GROWTH OF LANCASHIRE.

A new valuation of Lancashire, ordered by the county magistrates, for county rate purposes, has just been completed, which shows the great expansion which has taken place in the buildings and population of the several Lancashire towns within a very recent period. Under the new valuation the rateable value of the county is now 15,638,162*l.*, as compared with 12,552,000*l.* in 1872, being an increase of 3,086,162*l.*, in four years, or about 20 per cent. over the whole county, but the increase in the towns shows a much larger percentage, the valuation in some cases being more than double that of 1872. The town of Barrow-in-Furness, of which we have spoken, stands at the head of the list, the new valuation of that town being 167,492*l.*, as compared with 75,652*l.* in 1872, being an increase of 91,840*l.*, or more than 120 per cent. in the four years. This increase indicates an enormous amount of building, in houses and manufacturing and other business establishments, which has been going forward here. The comparatively young town of Southport is next in order of increase, the new valuation being 168,172*l.*, as compared with 91,870*l.* in 1872, showing an increase of 76,302*l.*, or about 80 per cent. in the four years. The new valuation of all the large towns also shows a large percentage of increase, that of Manchester being 2,243,406*l.*, as compared with 1,766,268*l.* in 1872, an increase of 477,138*l.*, or nearly 25 per cent.; Liverpool, 3,027,380*l.*, as compared with 2,782,193*l.* in 1872, increase 245,184*l.*, or about 9 per cent.; Salford, 629,514*l.*, as compared with 460,498*l.* in 1872, increase, 169,116*l.*, or about 35 per cent.; and Bootle, 103,770*l.*, as compared with 68,660*l.* in 1872, increase 35,110*l.*, or about 50 per cent. The two last-named boroughs may be regarded as portions of Manchester and Liverpool respectively, as they immediately adjoin the two great Lancashire towns.

THE NEWCASTLE ASSIZE COURTS.*

Sir,—Provincial architects have fondly imagined hitherto that the practice of "touting" for commissions was confined to a "limited company" composed of the fag end of the profession. That pleasant delusion has been rudely dissipated by the statements in your paper of the 16th September as to the proposed new Assize Courts at Newcastle. From that statement, in the absence of all explanation from Sir G. G. Scott, the provincial architects aforesaid may conclude that the practice of their London brethren is different from theirs, in the matter of "touting"; seeing that one of the most eminent architects in London, who was lately President of the Institute, condescends to practise it. It may be an unfounded rumour, but it is hinted that the commission for the proposed Hook Memorial Church at Leeds was obtained by similar means.

Already the example set has been followed, as I note in your paper of the 7th that a Mr. Frere, of London, has written to the Corporation of Great Yarmouth, expressing a "strong desire" to make designs for their new Town-hall, almost in the same terms as Sir Gilbert used in the Newcastle case. Can it be that the depression of trade is arresting the flow of commissions to certain offices? However that may be, the matter is one that requires explanation if architects are still to be regarded as exercising a profession and not a trade. I inclose my card.

A Provincial Architect.

CERTIFICATED HOUSES.

In these days of sanitary questions, there is one which has lately been brought forward by the Society of Arts. This society proposes that an Act of Parliament should be passed requiring every house newly built to receive a certificate from an official that the sanitary arrangements are all that are required to render the house tenantable. I have observed numerous complaints from new tenants that when they have taken possession of their houses they are put to an extra expense to put their drains in order. A great deal of this annoyance might be saved if the District Board of Works would at once appoint an official surveyor, who was really competent to give an opinion from his special

* We continue to receive so many letters on this subject that we cannot do less than print one of them. A few words from Sir G. G. Scott would doubtless remove the impression which widely exists.

knowledge of house arrangements. This officer would not require a high salary, as his remuneration would be by his examination of houses of intending tenants. If the purchaser would, in his agreement, put in the words "subject to the district sanitary surveyor's certificate," it would give the purchaser some security that he is buying a healthy home for his family, and it would encourage speculative builders to be careful in laying their drains, knowing that if they did not attend to these matters their property would be tabooed. If such a competent surveyor were appointed, and the purchaser were content to buy a house without his certificate, he would have no one to blame but himself, and he might discover that he had been penny wise. This, it seems to me, would be a simple remedy pending an Act of Parliament, if it did not supersede the necessity of one. A. B.

ACCIDENTS.

On the 9th inst. Dr. Hardwicke, coroner for Central Middlesex, concluded an inquiry at Middlesex Hospital relative to the death of Robert Henry Tennant, a painter in the employ of Mr. John Crossley, of Newark, the sub-contractor for the painting of the interior of All Souls' Church, Langham-place. On the 19th ult. deceased was at work with another man in decorating the roof of the church, when a temporary platform which had been slung to the general scaffold to enable them to reach the corners better gave way, both being precipitated violently to the ground, deceased being so much injured that he died before he reached the hospital. The jury deliberated a considerable time, and ultimately returned a verdict of accidental death; but they desired to add that the foreman should exercise greater vigilance over the men and prevent the erection of unsafe scaffolds. They thought, too, that the contractors should do something in the way of compensation to the widow.

On the 10th inst., Mr. W. W. Robinson, deputy coroner, held an inquest at the Radcliffe Infirmary, Oxford, on the body of Robert Henry Williams, aged 15, clerk to Messrs. Parnell & Son, of Rugby, who are erecting some new works at Keble College. The deceased fell from a balcony at Keble College the previous day. It was stated in evidence that the deceased was engaged in measuring some new work the previous afternoon on a balcony which was only 6 ft. from the ground. While alone on the balcony, and with the measuring tape in his hand, he stepped backwards off the balcony and fell into a hole 6 ft. or 7 ft. deep, which was made for the drain. Some part of his body struck against the trench, which was shored up. He was picked up, but never spoke. Mr. H. S. Brantfoot, the house physician, said that the deceased lived about two hours and a half, although he was unconscious. There was a fracture of the right base of the skull. Verdict, "Accidental death."

On the 16th inst. an inquest was held by Mr. Humphreys at the German Hospital, Dalston, touching the death of George Johnson, aged 61. Deceased was carman in the employ of Mr. Izard, contractor, Lea Bridge. On the 11th inst. he was assisting his master in unloading a large block of stone at the Hoe-street Station of the Great Eastern Railway, when the jack slipped, and deceased, in endeavouring to save it, fell over the side of the truck on to the handle of the shunting points. He was conveyed to the hospital and died the same day. Verdict, "Accidental death."

MASTERS AND MEN.

Dumbarton.—On the 6th inst. the apprentice carpenters in the employment of Messrs. Denny, Bros., struck work on account of some dispute as to "allowance money." The Messrs. Denny have a number of apprentice carpenters employed on a new vessel in the Gareloch, which is getting ready for sea. They do not regard the "allowance money" received as sufficient, and therefore refused to continue working there. Those apprentices employed in the yard, fearing they might be sent to supply the places of those who left, have refused to work, and joined in the strike.

Greenock.—At a meeting of Greenock operative masons on the 10th inst., it was resolved to come out on strike on Monday, the 16th inst. The men recently asked an addition of ½d. to their present rate of wages—9½d. per hour—and this being refused, they offered to take ½d. increase, but this demand also being resisted, a strike has been resolved upon.

DILAPIDATED HOUSES IN CAMBERWELL.

ORDER FOR DEMOLITION.

At the Lambeth police-court on the 12th inst., Mr. Napier, from the Solicitor's Office, Metropolitan Board of Works, appeared before the magistrate in reference to dilapidated houses in Havil-street, Camberwell. The houses were in a very bad state, and it was absolutely necessary for the public safety that measures should be at once taken for their demolition.

Mr. Jarvis, surveyor of Camberwell, said that Havil-street was in his district. He surveyed the premises on the 14th of July, and had then certified to their dangerous condition. They were in a very dilapidated state, the party-walls being separated from the front wall. The front wall was shored up. Notice had been given to the owners to pull them down.

The magistrate made an order that they should be demolished within fourteen days.

CURIOUS CLAIM FOR DAMAGES AGAINST A CONTRACTOR.

LEMAN *v.* WEBSTER.

In this case (heard in the City of London Court, before Mr. Besley, deputy judge), the plaintiff sued the defendant, Mr. Webster, contractor for the Holborn Viaduct Hotel, for 5*l.* damage done to his coat by dirty water splashing from the wall of the hotel.

The case had been adjourned, at the request of the defendant's counsel, for a tailor to give evidence as to the actual amount of the damage, as it was contended that the plaintiff's claim, even supposing he was entitled to recover, was excessive. The tailor who was called said that the coat did not cost anything like 5*l.* originally, and the damage was simply a little dirt, which could be completely removed by a clothes-brush.

Defendant's counsel submitted that plaintiff was, therefore, not entitled to anything. If a hansom cab splashed a man's clothes in the street, was he entitled to recover for cleansing them?

His Honour replied that any one would be entitled, and he would be very happy to make the hansom cab pay damages if it went splashing along. There was a great deal too much of people doing what they liked in the present day. What obligation was there on the plaintiff or on any tailor to brush the coat if it only cost sixpence to brush it?

Defendant still submitted that even then the plaintiff should only have sixpence for brushing the coat.

His Honour said the plaintiff ought not to be put to the expense of enforcing his legal rights against the defendant. It was the duty of contractors to protect passers-by from damage from the works they undertook.

Judgment for plaintiff—1s., with costs for his attendance on each occasion.

DISINFECTING APPARATUS FOR BIRMINGHAM.

The Health Committee of the Corporation of Birmingham have recently caused to be erected a number of buildings, wherein the clothes, bedding, &c., of persons suffering from contagious diseases in the town may be thoroughly disinfected. The premises are situated in the Bacchus-road, and at some distance from the Borough Hospital. They consist (according to the *Birmingham Gazette*) of several detached buildings, within an enclosed yard, and are apart from any dwelling-houses, with the exception of a cottage which has been erected for the residence of the person in charge of the station. The principal building, that in which the work of disinfection will be carried on, stands in the centre of the yard. This building is square, and its interior is divided into two parts. Occupying an equal space in each compartment, and supporting that part of the wall built over it, is what at first sight appears to be a fire-proof safe, measuring 6 ft. 5 in. square. This is the apparatus, which is the invention of Dr. Ransome, of Nottingham. The infected clothing is conveyed from the residence of the patient in a van provided for the purpose by the Corporation, and in charge of a servant in the employ of that body. It is taken to the station, the conveyance being admitted at a gate on one side of the yard, and at some distance from any building. If dirty, the articles are washed, but the process of cleansing will be seldom resorted to. The clothing is then put into the large iron box by a separate door on one side, the wearing apparel being hung up, and the bedding placed upon a perforated floor. The door is then closed, and the compartment becomes air-tight. By means of jars in a stove beneath, the temperature in the chamber is raised to between 250 and 270 degrees, and after remaining there for four or five hours the clothes are completely disinfected by the heated air, and all germs of disease have disappeared. The articles are then taken out from another door on the other side of the disconnecting wall, and are conveyed to their owner's premises in a separate van, which is drawn by a separate horse, driven by another man, and leaves the station by a different gate. The principle of isolation and disconnexion is thoroughly carried out in every respect, the receiving-rooms being completely separated from the rooms through which the clothes pass after undergoing the process of disinfection. The officials on each side are isolated, and the horses and vans are kept in different parts of the station. The station has cost altogether about 1,000*l.*

MONUMENTAL.

Edinburgh.—Messrs. Stewart, M'Glashan, & Son, Edinburgh, have completed the erection of a granite monument over the last resting-place of the late Mr. Brownlow North, in the Dean Cemetery, Edinburgh. The monument is in the form of an obelisk, resting upon a basement, the entire height being 13 ft. 6 in. It is in unpolished grey granite, three polished panels being introduced at the base, upon the front one of which is an inscription.

Broughton.—A tablet, from the design of Sir Gilbert Scott, has been lately placed in Broughton Church, to record the career of the Hon. Edward Twisleton, youngest brother of Lord Saye and Sele.

SURVEYORSHIP ITEMS.

Stafford.—At a special meeting on the 12th inst., the Stafford town council proceeded to the election of a borough surveyor and superintendent of the sanitary department. There were originally sixty-two applicants, from whom the special committee selected five candidates to attend before the council, viz.,—Mr. J. H. Duckinfield, of Huddersfield; Mr. T. L. Johnson, of Cardiff; Mr. J. B. M'Callum, of Liverpool; Mr. J. Parker, of Bridgewater; and Mr. J. H. Taylor, of Facit, near Rochdale. The testimonials of each candidate were read, and the candidates were called into the room and interrogated in the order named. On examination it was found (according to the *Staffordshire Advertiser*) that there were some serious discrepancies between some of the original testimonials of the first-named candidate and the copies supplied by him to the council, and on being questioned concerning them, he volunteered to retire from the contest. His testimonials were forthwith handed to him, and his expenses were disallowed. One or two discrepancies were also discovered between the original and copy testimonials supplied by Mr. Johnson, and he attributed the errors to the printer. Mr. M'Callum was elected, and promised to commence his duties in a month.

Moreton-in-Marsh.—Mr. Edmund Jesty, of Fonthill Gifford, near Salisbury, has been elected by the Moreton highway board surveyor of the district, to succeed Mr. Alfred Stephens, resigned. There were twenty-four candidates.

Cheshire.—With reference to the vacancy for a county architect and surveyor for Cheshire, "Lincoln's-inn" writes to the *Chester Chronicle* as follows:—"I happened in passing through Chester to stay for a little at the Grosvenor, and there met a gentleman whom I well knew, and who is on the commission of the peace for Cheshire. He mentioned to me, among other items of news, that an officer of the army had been found to fill the above appointment, and the choice was to be confirmed on Monday. He belonged, he said, to an ancient and very influential family in the county—a circumstance he thought likely to be of advantage, as it would form a sort of connecting-link between the commonalty and the county families, which would be most beneficial to all parties concerned. I replied that the benefit to some of the parties concerned was obvious enough. Surely my informant is incorrect in his information?"—At the adjourned Quarter Sessions for the county of Chester, held on Monday, the 16th inst., at Knutsford, a surveyor was appointed for the county. There were over 100 applicants, among them a lieutenant-general, a lieutenant-colonel, and several other officers of the army. Six candidates were selected, viz.:—Mr. Adam T. Blandy, Mr. Stanhope Bull, Mr. W. Gordon Cotton, Mr. A. W. Maberly, Mr. James Morgan, Mr. C. W. Whitaker. These gentlemen attended the meeting; and Mr. Stanhope Bull was elected, Mr. Cotton coming in second, and Mr. Maberly third. The salary is 500*l.* per annum, with travelling expenses and a commission on works executed.

Cheadle.—Mr. E. Carnwell has been appointed surveyor and inspector of nuisances to the Cheadle Rural Sanitary Authority.

Great Crosby.—Mr. G. E. Thoms has been appointed surveyor and inspector of nuisances

to the Great Crosby Local Board and Urban Sanitary Authority.

Dover.—Mr. John Hanvey, the Dover town surveyor, was going to his residence on Castle-hill, on the 11th inst., when he was attacked by four soldiers, who knocked him down and robbed him of a gold watch and chain. The men have been committed for trial.

Wandsworth.—At a meeting of the Wandsworth District Board of Works, on the 10th inst., Mr. Stolz moved that the General Purposes Committee be instructed to inquire into certain charges made against the surveyor to the Board, and read a long statement reiterating the charges he had brought against the surveyor on previous occasions. Dr. Brown seconded the motion. Mr. Forster proposed an amendment, that the question be referred to a committee of the whole Board. The charges had been investigated by a committee of nine, and found to be unsubstantiated. Mr. Dulley seconded the amendment. After some further discussion the amendment was carried almost unanimously.

SOUND-PROOF FLOORS.

In the course of the interesting paper on "Improved Dwellings for the Rich," not long since read before the Society of Arts by Mr. T. Roger Smith and Mr. W. H. White (published in your columns), it was mentioned that the floors of "flats" might be made equivalent to horizontal party-walls (*i.e.*, fire and sound resisting), and composed of rolled iron entirely enveloped in concrete. I should much like to know how this sound-resisting quality is to be obtained. Having recently almost entirely remodified some offices, one story was subdivided into two by the interposition of a floor, the composition of which was as follows:—There were rolled iron joists 5 in. deep placed about 2 ft. apart. Between them the space was filled in with Portland cement concrete mixed with coke; the soffite floated with fine gauged stuff, and top rendered with Portland cement to form floor, which was further covered with linoleum. The space between the floors was therefore remarkably little, being altogether but 6 in. I have no hesitation in saying that this solid floor is a superior conductor of sound to an ordinary wooden one. The sound of a pencil dropped on the upper floor makes the by-no-means nervous occupants of the rooms under jump. The hard floor, instead of *deadening* such noises, seems to *sharpen* them. In the case alluded to, the assistants are on their guard, the principal's rooms being underneath, so there is no grievance. But what about a bevy of romping children careering about just over some crusty old bachelor's chambers in those "flats" which Messrs. Smith and White advocate? Surely an ordinary wood floor (though not so proof against fire), with lath-and-plaster ceiling well "packed," would transmit sound far less than concrete. I do not suppose a concrete floor 12 in. thick would be less sound-proof than one 9 in. or 6 in. thick. I may add, on the other hand, that a great recommendation to the concrete floor consists in its equality of temperature. I have found that in winter the rooms are warm; in summer deliciously cool, notwithstanding the sun shines on them from about eleven to three o'clock. I feel sure the presence of concrete must be at the bottom of this. Having carefully read through the whole of the paper and discussions on concrete lately published in the Institute Transactions, I did not find the points just named fully elucidated there, so I appeal to your columns.

I should like also to ask (while on the subject of acoustics) how it happens that a partition constructed according to the following description is not as sound-proof as an ordinary quartered lath-and-plastered partition: two thicknesses of inch boarding, one placed vertically, the other horizontally, with *very thick hair-felt* between them, the boards canvassed and papered on the outside edges.

INQUIRER.

Royal Archæological Institute. — The Town Clerk of Hereford has received a letter from Mr. Fortnum, one of the vice-presidents of the Archæological Institute (in the illness of the hon. secretary), stating that "the unanimous feeling of the council was, that Hereford be fixed upon as the city in which our Congress for the coming year, 1877, shall be held." Hereford has already been visited by the Cambrian Archæological Society and the British Archæological Society; by the last-named so lately as in 1870.

THE NEWBURY MUNICIPAL BUILDINGS.

THE LATE CASE OF CROOK *v.* BROWN.

SIR,—I am always unwilling to enter into a controversy publicly, but as you have reported this case, in which I was the complainant, you will, I trust, in justice to myself, permit me to give the building section of the public the real version of the affair.

In the first place, the contract provides that the old materials which were sound and fit for use were to be reused; and in the next place, it provided that if any unsound or improper materials were used, the contractor should have notice in writing to remove them, and if he failed to do this, then the architect should do so at his cost; but the magistrates refused, as I think very unfairly, to receive the contract or specification as evidence, simply because the clerk of works was not a party to it. Now, I wish to ask what is the duty of a clerk of works, if it is not to study the plans and *specification*, and see the work carried out accordingly? But here was one who had evidently done neither, and at this very time was under notice of dismissal, for reasons best known to himself and his employers. These were the real facts of the case:—A moulded string-course of Bath stone, 3 in. thick, was worked and fixed in the building, which he condemned, because it was in lengths of from 15 in. to 2 ft. If he had looked at the detail drawings he would have seen that it was strictly in accordance therewith. I, however, had the stone removed, and some other worked and fixed in its place, which he also objected to, not for the reason that it was short, but because it was not *new stone*. Now, sir, all practical men, especially masons, know full well that the longer Bath stone is exposed to the air the harder and better it is, as it thereby becomes seasoned, and will not be affected by frost, as new stone often is. Why, our stone merchants make it a point of recommending the stone that has been longest out of the quarry, and this very stone was thoroughly sound and much harder than the new stone; it has been seen by some of the best, oldest, and most practical masons in Newbury, and pronounced by them to be excellent. Well, sir, this clerk of works, without giving me notice, either verbally or in writing, to remove the stone, takes a heavy hammer, and, in a fit of ill temper, deliberately smashes it before it had been fixed two hours; and it was to raise the point and try the right of any clerk of works to violently take the law into his own hands and destroy a contractor's property that I brought the case before the justices. Perhaps it was not the right tribunal to have appealed to, for the reason that the gentlemen composing it were not, by their vocation and knowledge of building matters, competent to deal with it; but I should be perfectly content to submit to the judgment of any practical men, and abide thereby.

However, the matter is not of sufficient importance for me to take any further notice of it. Although I did not obtain a decision in my favour, I have to a certain extent accomplished my purpose in drawing the attention of others who like myself are engaged in the trade to the question, and I have no doubt that clerks of works will in future be careful not to exceed their duties as this one did, on the authority of Mr. Money, the architect, who honestly and honourably stated in his evidence that it was a course he could not justify, and should not himself have pursued, and further that he had no feeling in the matter, neither was there any unpleasantness between himself and the contractor, which I am very happy to confirm. Unfortunately he was from hom at the time this happened, or the stone would not have been broken; for if he had directed me to remove it I should have done so, though I am quite sure that had he seen the stone before it was broken he would not have objected to it, as better could not possibly be.

JOHN CROOK.

Books Received.

Plumbing: a Text-book to the Art or Craft of the Plumber. With Supplementary Chapters upon House Drainage. By WILLIAM PATON BUCHAN. London: Crosby Lockwood & Co.

THIS is intended as a text-book for the apprentice-plumber, the author of it, a member of the trade, having felt the want of such a treatise himself when an apprentice. The best use of the book in this way would be to give the apprentice an idea beforehand as to what he was to learn and look out for, and systematise the whole subject for him a little, which is of course a help to learning, and may enable the apprentice to look at the workshop operations with more understanding eyes than if he had to pick it all out as he went on, and find the reason for everything by inquiry. Otherwise, there is nothing in the book beyond what would be learned in the ordinary routine of the trade, nor could it be accepted at all as a complete treatise on plumbing; it is rather a series of chapters on the methods of various plumbing operations. The writer pays a good deal of attention to considerations of drainage, trapping, and ventilation, on which he evidently writes with some experience. The book is rather roughly put together, and written in what we should call "specification English," but it may be useful, and is of a convenient size for a book of reference, to be kept "handy." The writer alludes in his introduction to the importance of having the lead work, piping especially, which is now so extensive and intricate a portion of house-fitting, properly and carefully carried out; and nothing can be more true. But the question might perhaps be entertained whether the abolition of lead-piping, the possibility of substituting something that would be an improvement on it, is not an ultimate object to be looked to. Lead-piping is very expensive; it is not the best thing, in a sanitary point of view, to convey the water through; it is always getting out of repair, and under certain atmospheric conditions bursting, and is perhaps the cause of more disagreement between landlords and tenants than any other element in repairs to house property. Moreover, if we could get rid of the plumbers, there would be a considerable annual saving in fire insurances, and a better chance of preserving cathedrals, theatres, and other large buildings from those conflagrations which occur when "the plumbers are repairing the roof." However, in the absence of any immediate substitute, it is probable that plumbing may last our time; and so Mr. Buchan is to be commended for his efforts to improve it.

The Landscape Gardener: a Practical Guide to the Laying Out, Planting, and Arrangement of Villa Gardens, Town Squares, and Open Places, &c., &c. By JOSEPH NEWTON, F.R.H.S. London: Hardwicke & Bogue.

THIS is a rather large title in comparison with the scope of the work. It contains twenty-four plans, or drawings, which are something between plan and perspective, of different schemes for laying out gardens of moderate size, chiefly in relation to private houses. As, however, the author says that "the credit of the designs belongs to Dr. Siebek," and as the letterpress is merely an explanatory description of each design, it is not very easy to see why Dr. Siebek's name should not rather be on the title-page. The drawings are untinted, and merely show the direction of walks and the disposition of trees, whether singly or in what the French gardeners call *massifs*: the designs are all in one style, and, we confess, appear to our eyes to have a most remarkable and monotonous similarity of disposition. The variety may lie in the nature of the trees employed, which are catalogued with references to numbers on the plans; and, we must presume, are arranged with the view of producing pleasing combinations or contrasts of tints and foliage. In this way the book may be useful to those who wish to have some guide as to what trees they should procure for planting in various positions; but as the designs do not show in the least the varying character or colour of the vegetation, it is impossible to form any judgment as to what the result would be. The plans are all in what is called English taste, showing studiedly sinuous walks, arranged with a kind of unsymmetrical symmetry. Nothing could be less calculated to look well on paper; though in execution this method of laying out, when the various walks are sufficiently masked by raising the ground or by planting, has the effect of giving an impression of space and extent greater than the real area covered. We ourselves rather like a garden to be a garden,—to be openly and confessedly artificial, rather than to aim at a constructed irregularity, an imitation of nature. Tastes, however, differ in this respect. As a reference-book for the titles of trees fitted for ornamental planting, the volume will be useful; but it hardly makes the subject attractive.

Miscellanea.

Liddell's Improved Brick-making Machine.—Every good step in the direction of the object of this machine is noteworthy. The advantages claimed for this machine over others are numerous. For example, it is less liable to breakage, being more than a half heavier, consequently much stronger in all its different parts; also having only four bevel wheels, while other machines of a similar construction have no less than ten bevel wheels, which, with their attendant shafts and brackets, often become a total wreck, simply through a stone or any other hard substances getting into the gearing. The strain on the amount of gearing in these is very great, and either causes the shafts to jump out of their places or brings the machine to total ruin. In Mr. Liddell's machine the connecting-rods from cranks to slides are so fitted with safety springs that should any stone or piece of iron get into the slides the springs allow the connecting-rods to pass, and thus prevent injury, and when the impediment is removed this machine resumes its work with little or no trouble. It is so compact and simple and complete in its construction, that all the principal parts can easily be got at for repair.

Monuments in Westminster Abbey.—A correspondent writes:—"The appearance of the north transept has been completely metamorphosed; a new vista to the south-east having been thrown out, by taking down a brick wall which not only surmounted but completely invested an ancient stone screen; and the columns of the arcade on its western side having been disengaged from the monuments, by the removal from these latter of their needless and heavy backgrounds, thereby disclosing a fact which the cursory visitor might be forgiven for not knowing,—viz., that the transept is possessed of a western aisle, lighted by large handsome windows. The importance of the works carried out cannot possibly be overestimated; they are an earnest protest against the notion, which has been allowed of late years too much to possess the public mind, that the Abbey is but a museum; and also against the system of hacking and cutting about its walls to make room for what some call busts, but others figure-heads. Though generally understood that to Lord John Thynne, the venerable sub-dean, the public are indebted that this poor and tardy act of justice should at last be rendered to the Abbey, it is not too much to say that, had not the works been carried out under the watchful and sympathetic eye of the Rev. R. Duckworth, the canon in residence, the result might have been far less happy than what we now see. The Dean and Chapter have but commenced a great scheme in which they must not be allowed to stop short; the Abbey requires no more accessions of modern monumental works of art, falsely so called; but if a general clearing out of all that is hideous and incongruous be impossible, at least a reduction in size and a rearrangement of the material with which its interior has been lumbered during the last 300 years are proved perfectly practicable."

Surveyors' Charges on the City Sewers Commission. — At the meeting of the City Commissioners of Sewers, on the 10th instant, Mr. J. C. Davis called attention to the large sums to be paid to surveyors in respect to the property which had been taken by the Commissioners in the Poultry for the purpose of widening the thoroughfare. He thought that an effort should be made to keep these fees as low as possible, as improvements like these were entirely for the public benefit. The Chairman remarked that there could be no doubt this had been a most costly improvement, and, in negotiating for the purchase of the several properties they had enormous difficulties to contend with. The Commissioners invariably agreed with the claimants to pay all surveyors' fees, and, that being so, they had no alternative but to pay the amounts referred to. Mr. Davis also drew attention to the large sum, amounting to between 500*l.* and 600*l.*, to be paid to the engineer, Mr. Haywood, for assistance in his office for the quarter to Michaelmas. The Chairman said there were included in the last twelvemonths' statement certain amounts for improvements which had formerly been spread over four or five years. He added that these items had been considerably increased in consequence of proceedings which had been taken under the Artisans and Labourers' Dwellings Act.

A Benedictine Monastery in the Highlands.—The foundation-stone of a Benedictine Monastery at Fort Augustus, N.B., was laid on the 13th ult. The plans have been prepared by Mr. J. A. Hansom, of London, and by them provision is made for the conversion of Fort Augustus (a stronghold erected in 1729 to check rebellious Highland clans) into an imposing ecclesiastical pile in the Scottish Gothic style,—an edifice comprising, first, a monastery, which will be capable of accommodating 20 monks, each having his own commodious cell; next, a college intended for the education of 80 students; and, lastly, an hospitium, which will furnish means of entertaining about 30 guests, and which, it is expected, will, when complete, be much resorted to, not only by priests in their annual week of retirement, but also by other travellers. For the fitting up of the several portions of the building, Mr. Hansom has provided, and although the walls of the fort are intact, and will be fully taken advantage of, 4,000*l.* will be required to carry out the work. This is exclusive of the church cloisters, which will be erected as soon as the requisite funds are forthcoming, and which it is proposed to design in such a way as will correspond with the characteristics which the quadrangle will now assume.

Lead-stealing from a City Church.—At the Mansion House Police-court, on the 14th inst., two labouring men, named Charles Higgins and James Prendergast, were brought before Alderman Sir R. Carden, charged with stealing a large quantity of lead from the Church of St. Michael, Queenhithe. The church was recently doomed to destruction, the benefice being joined to another under the authority of the bishop and the Ecclesiastical Commissioners, and the building was purchased by contractors, who employed the prisoners and others in the work of demolition. On the 13th inst. the prisoners were seen by detectives during the dinner-hour in Union-street, in the Borough, and from their bulky appearance they were watched. The prisoners turned up the Southwark Bridge-road, and were going in the direction of the City when the officers stopped them, and found 33 lb. of lead on Higgins and 11 lb. on Prendergast. There was a large quantity of old lead in the church, and that found upon the prisoners had evidently formed a portion of it. When they were asked to account for the possession of the lead they at once admitted they had brought it from the church. The employer of the prisoners gave them most excellent characters, and said he looked upon them before this as two of the best men in his service. The prisoners both declared that this was the first time they had been guilty of any act of dishonesty, and said that before the officers spoke to them they felt that they had done wrong, and were on their way back to replace the lead they had stolen. Sir R. Carden said it was a sad thing to see working men with such characters as they had received placed in such a position, but under the circumstances he should deal with the case as one of unlawful possession, and fine them 10*s.* each, or fourteen days' imprisonment. The money was paid.

Temple Bar. — At the Court of Common Council on the 12th inst. Mr. G. C. Boore moved that before proceeding with the demolition of Temple Bar, it be referred to the law officer of the Corporation to report forthwith as to whether the Corporation have the power to erect a bar or archway on the site of the present structure. Mr. Phillips expressed his opinion that the motion was merely a subterfuge for the purpose of causing a delay. The Bar was an undoubted nuisance, and ought to be abolished at once. Mr. Lawley denied that any subterfuge was intended. After some further discussion, Deputy Lowman Taylor proposed as an amendment that it be an instruction to the City Lands Committee to take into consideration the rights of the Corporation over the site of Temple Bar, and report forthwith to the Court. The amendment was carried. Mr. R. Cox then moved that the Court proceed with the next business, which was carried. The amendment, therefore, was not put as an original motion, and the matter remains in the same position as before,—namely, that the Bar is to be removed as speedily as possible.

Presentation to Mr. Morris Charles Jones, F.S.A.—At the ninth annual meeting of the Powysland Club and Museum, Welshpool, held on the 5th inst., the Earl of Powis, president, in the chair, a testimonial was presented to Mr. Morris Charles Jones, F.S.A., in recognition of his services as the originator of the club and founder of the museum, and as the hon. secretary of the club. The testimonial consisted of a shield in *repoussé* iron and silver by M. Morel Ladeuil, one of the principal artists to Messrs. Elkington & Co., and being a *fac-simile* of the "Milton Shield," purchased by the Government for the South Kensington Museum. At Mr. Jones's request, the shield is to be placed in the museum at Welshpool. A supplementary presentation, in acknowledgment of Mr. Jones's services as editor of the "Montgomeryshire Collections," published by the Club, consisted of a bronze group representing the death of Tewdric Mawr, King of Gwent and Morganwg, 610 A.D. This group was designed, from suggestions by Lady Llanover, by the late John Evan Thomas, F.S.A., and modelled by his brother, W. Meredyth Thomas, medal student, R.A., London.

Value of Land in Manchester. — About 968 yards of ground in Piccadilly, Manchester, occupied by the White Bear Hotel and buildings at the back, recently fetched by auction nearly 61*l.* per square yard, which considered a large price. The purchaser had an offer of 3,000*l.* over the sum he had paid shortly after the fall of the hammer.

A Considerate Town Council.—At a meeting of the Barrow Town Council, on the 2nd inst., a long discussion took place on the Pennington Waterworks Contract. It appears that the engineer's estimate for the Pennington reservoir was 28,000*l.*, including land, and the tender of Mr. Poole, the contractor for the construction of the reservoir, was 26,650*l.*, being, it is stated, by far the lowest of the tenders sent in. The contract specified that the work was to be completed within twelve months, but the time had been extended to two years. In April, 1875, the contractor applied for an advance of 4,200*l.* on the contract sum, on the ground that the excavations for the tunnel connecting the reservoirs were far harder than was originally supposed. This was granted, but the contractor now applied for an additional sum of 4,500*l.* On the recommendation of the engineer, and to avoid the delay and uncertainty as to the issue of an arbitration, it was resolved, after a long debate, to make another and final grant to the contractors, subject to certain conditions.

Roman London.—Mr. E. P. Loftus Brock writes to say that several interesting sculptures have been met with in the Roman wall, Camomile-street, Bishopsgate, a portion of which was discovered early in September. The objects consist of fragments of moulded cornices of large size, a fluted pilaster, a portion of an engaged and carved shaft, and other architectural members. Above all these in interest is the figure of a lion, very boldly carved, standing above a recumbent lioness (?). This sculpture will occupy a high place among the relics of Roman London on account of the vigorous design and the capital execution of the group. It is in full relief. The lion and some of the other sculptures will be placed in the Guildhall Museum. They have been presented by the architect of the buildings in course of erection on the site, Mr. W. C. Banks.

The Royal Aquarium and Winter Garden, Westminster.—At an extraordinary general meeting of the shareholders of the Royal Aquarium and Summer and Winter Garden Society, Westminster, on the 12th inst., Mr. Stephen Coleman submitted a scheme for the future management of the concern. Mr. Coleman proposes to make several important alterations in the construction and management of the building, such as the removal of the orchestra and organ to the skating-rink end; the abolition of the rink; better arrangements for the convenience of fellows; the formation of a permanent choir; and the introduction of concerts similar to those held at the Floral Hall during the operatic season. The scheme was referred to a committee.

Serious Landslip in Manchester.—The heavy rains of Sunday, the 8th inst., caused the River Irwell to rise to 12 ft. above the low water mark, and caused a serious accident and great damage to property near St. Simon's Church, Salford. A large intercepting sewer has been in course of construction for some time in Salford, and the sewer had been carried to the Irwell, the mouth of it being, however, closed by a dam. During the night the water forced the dam down, and rushing into the sewer, burst it, and several extensive landslips occurred in consequence. Three or four cottages and a beerhouse were partially wrecked. Fears were entertained for the safety of St. Simon's Church, which is only a few yards away from the landslip.

The late Mr. Thomas Clark, A.R.S.A.—The *Scotsman* announces the death of Mr. Thomas Clark, A.R.S.A., which took place on the 7th inst., at Dundarach, Aberfoyle. The deceased artist was a son of the late Mr. William Clark, W.S., Sheriff-Substitute of Clackmannanshire, and was educated at Dollar. In the course of his schooldays he sustained an injury to the shoulder, the effects of which crippled him through life. Having early resolved to become a painter, he prosecuted in Edinburgh the necessary studies, and in his twentieth year began to exhibit. He was elected an Associate of the Royal Scottish Academy in November, 1865. He painted both in water-colour and oil.

Inverness Town-hall.—At a meeting of the Inverness Town Council, on the 4th inst., the New Town-hall Committee reported that they had instructed Messrs. Matthews & Lawrie to reduce their plan in terms of instructions, and to show first a sketch of what they proposed, the cost to be guaranteed not to exceed 9,500*l.*, and the hall not to be less than 60 ft.

The New Vestry Hall, Hampstead.—At a meeting of the Hampstead Vestry on the 13th inst., Messrs. Kendall & Mew, the architects, certified that Mr. Shepherd, the builder engaged on this work, was entitled to a payment 1,000*l.* The chairman informed the Vestry that Mr. Shepherd had not yet complied with that portion of the contract which required him to give sureties for 2,000*l.* for the proper execution of the work, though he had been allowed to commence the works. At the suggestion of the Vestry Clerk, and on the motion of Mr. Pearse, it was resolved that the cheque should be drawn at once, but held back until the previous resolution had been complied with.

Germany and the Paris Exhibition of '78.—The *National Zeitung* publishes a long article by Dr. Lessing, director of the Royal Industrial Museum, who advises Germany not to take part in the Paris Exhibition of 1878. He asks the following remarkable questions:—"Have we not, after all, to do with a malevolent intention? Has France not chosen just the present period to assert anew her supremacy?" People who share these opinions are (according to a Berlin correspondent) daily increasing in number, and it becomes more and more doubtful whether Germany will be officially represented at the Exhibition.

Heating Railway Carriages.—A correspondent, "J. B.," writes to ask "whether some method could not be devised for receiving all the waste steam from the locomotive engine into a pipe constructed for the purpose, and so conducting it through the flooring of all the carriages as it is in the feet that the cold is so severely felt?" We observe in the *London Gazette*, of October 6th, 1876, notice is given that provisional protection has been allowed to Mr. Alfred Mason, of Bradford, for the invention of "improvements in the method of and apparatus for warming railway-carriages with exhaust or waste steam from the engine."

The Midland Station at Bedford has just been completed. In the autumn of last year the directors ordered the down platform to be lengthened, and the whole of the station to be redecorated. The contractors selected were Messrs. T. & H. Skevington, of Derwent-street, Derby, and under the management of Mr. Stratford, of Gloucester, the clerk of the works, the covered portion of the station has been largely increased, and the whole building, including waiting-rooms, rendered more worthy of the increasingly-important town of Bedford.

Proposed Wood Pavement for the Strand. At a meeting of the ratepayers and inhabitants of the Strand on the 12th inst., a resolution declaring the expediency of laying down wood pavement in the Strand was carried unanimously, and a memorial to the vestry of St. Martin's-in-the-Fields was signed by every one present, praying that the work should be done, and offering on the part of the signitaries to defray the extra cost (over stone cubes) by a self-imposed local rate.

Messrs. Doulton and the Bricklayers.—Too late for insertion in its proper place, we received a letter from Mr. John Phillips, denying the correctness of some of Mr. Solly's statements in our last number. Mr. Phillips says,—"I may observe, in conclusion, that notwithstanding the intimidation practised by the Union and its pickets to prevent, if possible, Messrs. Doulton carrying on their works, we have now some eighteen bricklayers employed on the several buildings, and hope shortly to obtain the full number required."

No Music for Skating Rinks.—More than usual interest attached to the Middlesex Licensing Sessions on the 13th inst., in consequence of its being the first occasion upon which applications had been sent in for music licences for skating-rinks. Every application made was refused, Mr. J. F. Pownall remarking that there was no doubt such places would, in time, become music-halls, which the Court did not desire should be increased in number.

Unitarian Chapel Architecture.—At a Council meeting of the British and Foreign Unitarian Association, held on the 3rd inst., it was resolved:—"That it be an instruction to the Executive Committee to consider and adopt such means as may seem practicable, consistently with a due regard to the various circumstances and needs of different localities, with a view to the improvement of Unitarian ecclesiastical architecture."

Sawdust as Fuel.—For some time past a new steam-engine has been at work at Chatham Dockyard, and has been used for driving the machinery at the saw-mills, and for pumping the water consumed in the yard. Sawdust is used as fuel instead of coal, and it is said that the sawdust generates steam much more readily and with less trouble than coal. The sawdust is forced into the furnace by means of an air-shaft, a continuous supply being kept up.

The Sewage Question at St. Anne's-on-the-Sea.—Messrs. Maxwell & Tuke, architects, being directed by the Land and Building Company of this place to investigate the principles and practice of the pneumatic system of sewerage invented by Captain Liernur, and partially adopted at Dordrecht, Leiden, and Amsterdam, have advised that the system should be tried in the new town of St. Anne's.

The Late Mr. George Smith.—It is stated that the late Mr. G. Smith, the Assyriologist, has left a widow and a large family, who are now plunged in the greatst distress by his untimely death. A fund for their relief has been opened, towards which subscriptions will be thankfully received by Mr. J. W. Bosanquet, 73, Lombard-street, E.C., in the names of Sir Henry Rawlinson and Dr. Birch.

Indian Public Works.—It is said by the *Bombay Gazette* that Sir Andrew Clarke, the head of the Public Works Department, has steadily resisted the cry of certain economists, especially at home, to curtail productive works in India. Many public works may thus be saved this year, but the struggle will be to obtain the requisite sanction next year for public works of all sorts and description.

Proposed Historical Picture.—The *Morning Post* hears that Mr. Val Prinsep is commissioned to proceed to India to paint a great historical picture of the proclamation of the Empire at Delhi. It is said the artist is to receive 5,000*l.* for his work and 1,000*l.* for expenses.

Reduction in the Price of Gas.—At a meeting of the City Commissioners of Sewers, on the 10th inst., a letter was read from the Gas Light and Coke Company, stating that on the 1st of January next, the price of gas supplied to the City would be reduced to 3*s.* 9*d.* per 1,000 cubic feet.

Fox and Knot Mission Hall, Charterhouse-street.—A new mission-hall with the foregoing title has been built and opened in Charterhouse-street. Messrs. Habershon & Pite were the architects, and the work was carried out by Messrs. Matthew Allen & Son.

Knight's Terra-cotta Chimney Terminal. This is arranged to allow any smoke that may be blown down to pass out at the sides. There is nothing new in principle, but it seems an adaptation that may be useful.

Bailey's Turret Clock.—Messrs. Bailey & Co., of Salford, are manufacturing a turret clock which remedies some defects, and deserves notice. Several which have been put up are doing good service.

Clapham Marble Rink.—Mr. Rowley wishes we should add to the account we published of this place of recreation, that the whole of the ironwork, including roofing, &c., was designed, supplied, and erected by him.

TENDERS

For roads and sewers, at Tulse-hill. Messrs. Hanmack & Lambert, surveyors:—

Reddin	£4,600 0 0
Botterill	4,314 0 0
Tipping	4,160 10 0
Woodham, Bros.	4,100 0 0
Keeble	3,987 0 0
Stevenson	3,828 0 0
Jackson, E.	3,777 0 0
Jackson	3,720 0 0
Thompson & Son	3,447 0 0
Hutchinson & Co.	3,200 0 0
Wilson	2,998 0 0
Love	2,700 0 0
Mayo	2,700 0 0
Garrett	2,690 0 0

For Board-room, Kensington, for the Kensington Board of Guardians:—

	Board-room.	Strong-room.
Brass	£1,635 0	£335 0
Newman & Mann	1,506 0	300 0
Macey	1,477 0	302 0
Browne & Robinson	1,463 0	286 0
Colls	1,429 0	259 0
Mills	1,415 0	182 0
Sewell	1,406 0	243 0
Bayes, Bros.	1,372 0	230 0
Aitchison & Walker	1,355 0	249 0
Hook	1,319 15	239 17
Smale	1,353 0	180 0

For the Royal Opera-house, Leicester, exclusive of decorations, upholstery, seating, and special gaswork. Mr. C. J. Phipps, architect:—

Osborne, Bros.	£12,771 0 0
Bracher	12,400 0 0
Lindley	11,382 0 0
Allen	11,373 0 0
Bass & Hodgkin	11,352 0 0
Bland & Sons	10,830 0 0
Kellett*	10,825 0 0

* Accepted, and afterwards divided into separate contracts for each branch of trade.

For the erection of house for Mr. Wm. Ashley, Greetwell-road, Lincoln. Messrs. Goddard & Son, architects. Quantities supplied:—

Barnes & Wright	£2,730 0 0
Martin & Sims	2,639 0 0
Otter & Elsey (accepted)	2,389 0 0

For the erection of stables at New Ferry, Cheshire, for the Wirral Tramway Company. Mr. Charles H. Beloe, architect. Quantities supplied:—

Jones & Sons	£3,160 0 0
Urmson	2,985 0 0
Williams	2,800 0 0
Tomkinson & Sons	2,790 0 0
Hope	2,606 0 0
Forde	2,547 0 0
Fisher (accepted)	2,459 0 0
Aspinall	1,925 4 0

For alterations at Nos. 24 & 25, Paternoster-row, for Messrs. Wm. Hawtin & Son. Mr. Horace T. Bonnor, architect. Quantities not supplied:—

		Deductions.
Austin	£940	£242
Kirk	799	136
Linzell (accepted)	630	112

For the restoration of the parish church of St. Lawrence, Pembrokeshire. Mr. E. H. Lingen-Barker, architect:—

James & Thomas	£410 0 0
Jenkins & Jones	379 0 0
Lewis & Phillips	370 0 0
T. & J. Lloyd (accepted)	349 0 0

For the erection of new stable, boundary-wall, and entrance-gates, Folkestone, for Mr. Bridges. Mr. Burgess J. Reeve, architect:—

Robinson	£129 0 0
Brooks & Slade	127 5 0
Holdom	115 0 0
Dunk	108 10 0
Butler	102 0 0

For boundary-walls, entrance-gates, iron palisading, and sundry alterations at the Folkestone Gas and Coke Company's works. Mr. Burgess J. Reeve, architect:—

Butler	£458 0 0
Webster	350 0 0
Brooks & Slade	296 0 0
Dunk (accepted)	263 0 0

For alterations and additions to the Fire Brigade Station, Bow, for the Metropolitan Board of Works. Mr. G. Vulliamy, architect:—

Greenwood	£3,278 0 0
Ennor	3,172 0 0
Morter	3,143 0 0
Sims	3,082 0 0
F. & F. J. Wood (accepted)	2,983 0 0

For the sewerage of Harrow-road, Kensal New Town, for the Vestry of Chelsea. Mr. G. H. Stayton, engineer:—

Williams, Son, & Wallington	£1,395 0 0
Nowell & Robson	1,370 0 0
Killingback	1,350 0 0
Neave & Son	1,339 0 0
Mears (accepted)	1,056 0 0

For alterations to the Wellington Hotel, Sheerness, for Mr. Brisley:—

Sommerville & Smith (accepted)	£290 13 0

For alterations to the Robin Hood Tavern, Holborn, for Mr. J. Woods:—

Sommerville & Smith (accepted)	£230 0 0

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